

Workshop Manual

Audi A6 2011 ➤
Audi A6 China 2012 ➤
Audi A7 Sportback 2011 ➤

4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve
TFSI - generation III)

Engine ID	CYG A	CYN B	CYP A	CYP B	CYY A				
-----------	----------	----------	----------	----------	----------	--	--	--	--

Edition 08.2017



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 10 - Removing and installing engine
- 13 - Crankshaft group
- 15 - Cylinder head, valve gear
- 17 - Lubrication
- 19 - Cooling
- 21 - Turbocharging/supercharging
- 24 - Mixture preparation - injection
- 26 - Exhaust system
- 28 - Ignition system



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

All rights reserved.
No reproduction without prior agreement from publisher.

Contents

00 - Technical data	1
1 Identification	1
2 Safety precautions	2
3 Repair instructions	3
10 - Removing and installing engine	4
1 Removing and installing engine	4
1.1 Removing engine	4
1.2 Securing engine to engine and gearbox support	20
1.3 Installing engine	20
2 Assembly mountings	27
2.1 Exploded view - assembly mountings	27
2.2 Supporting engine in installation position	31
2.3 Removing and installing engine mountings	32
2.4 Removing and installing gearbox mounting	34
3 Engine cover panel	37
13 - Crankshaft group	38
1 Cylinder block (pulley end)	38
1.1 Exploded view - cylinder block (pulley end)	38
1.2 Removing and installing poly V-belt	38
1.3 Removing and installing tensioner for poly V-belt	38
1.4 Removing and installing vibration damper	38
1.5 Removing and installing bracket for ancillaries	38
2 Cylinder block (gearbox end)	40
3 Crankshaft	41
4 Balance shaft	42
5 Pistons and conrods	43
15 - Cylinder head, valve gear	44
1 Timing chain cover	44
2 Chain drive	45
3 Cylinder head	46
3.1 Exploded view - cylinder head	46
3.2 Removing and installing cylinder head	46
3.3 Checking compression	49
4 Valve gear	50
4.1 Exploded view - valve gear	50
4.2 Removing and installing camshaft	50
4.3 Installing ball for slider	52
4.4 Removing and installing actuators for camshaft adjustment	52
4.5 Removing and installing camshaft control valve 1 N205	52
4.6 Removing and installing valve stem oil seals	52
5 Inlet and exhaust valves	53
17 - Lubrication	54
1 Sump/oil pump	54
1.1 Exploded view - sump/oil pump	54
1.2 Engine oil	54
1.3 Removing and installing sump (bottom section)	54
1.4 Removing and installing oil pump	55



1.5	Removing and installing sump (top section)	55
1.6	Removing and installing oil level and oil temperature sender G266	55
2	Engine oil cooler	56
3	Crankcase breather	57
4	Oil filter/oil pressure switches	58
19 - Cooling	59
1	Cooling system/coolant	59
1.1	Connection diagram - coolant hoses	59
1.2	Checking cooling system for leaks	62
1.3	Draining and filling cooling system	62
2	Coolant pump/thermostat assembly	68
2.1	Exploded view - coolant pump/thermostat	68
2.2	Exploded view - electric coolant pump	68
2.3	Exploded view - coolant temperature senders	70
2.4	Exploded view - coolant valve for gearbox	71
2.5	Removing and installing electric coolant pump	71
2.6	Removing and installing coolant pump	74
2.7	Removing and installing toothed belt for coolant pump	75
2.8	Removing and installing actuator for engine temperature regulation N493	75
2.9	Removing and installing coolant temperature sender G62	75
2.10	Removing and installing radiator outlet coolant temperature sender G83	76
2.11	Removing and installing coolant valves	76
3	Coolant pipes	78
3.1	Exploded view - coolant pipes	78
3.2	Removing and installing coolant pipes	80
4	Radiator/radiator fans	90
4.1	Exploded view - radiator/radiator fans	90
4.2	Exploded view - radiator cowl and radiator fans	92
4.3	Removing and installing radiator	92
4.4	Removing and installing radiator cowl	95
4.5	Removing and installing radiator fan V7	98
21 - Turbocharging/supercharging	100
1	Turbocharger	100
1.1	Exploded view - turbocharger	100
1.2	Removing and installing turbocharger	100
2	Charge air system	102
2.1	Exploded view - charge air system	102
2.2	Exploded view - hose connections for charge air system	103
2.3	Removing and installing charge air cooler	103
2.4	Removing and installing charge pressure sender G31	104
2.5	Checking charge air system for leaks	105
24 - Mixture preparation - injection	106
1	Injection system	106
1.1	Overview of fitting locations - injection system	106
2	Air cleaner	114
2.1	Exploded view - air cleaner housing	114
2.2	Removing and installing air cleaner housing	114
3	Intake manifold	117
3.1	Exploded view - intake manifold	117
3.2	Removing and installing intake manifold	117
3.3	Removing and installing throttle valve module J338	120

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright © AUDI AG.

3.4	Cleaning throttle valve module	120
3.5	Checking intake manifold change-over function	120
4	Injectors	121
4.1	Exploded view - fuel rail with injectors	121
4.2	Removing and installing fuel rail	121
4.3	Removing and installing injectors	121
4.4	Cleaning injectors	121
5	Senders and sensors	122
6	High-pressure pump	123
7	Lambda probe	124
8	Engine control unit	125
8.1	Removing and installing engine/motor control unit J623	125
26	- Exhaust system	128
1	Exhaust pipes/silencers	128
1.1	Exploded view - silencers	128
1.2	Separating exhaust pipes/silencers	130
1.3	Removing and installing front silencers	131
1.4	Stress-free alignment of exhaust system	133
1.5	Checking exhaust system for leaks	133
2	Emission control system	134
2.1	Exploded view - emission control system	134
2.2	Removing and installing catalytic converter	134
2.3	Removing and installing exhaust flap control unit J883	135
28	- Ignition system	136
1	Ignition system	136



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Audi A6 2011 ➤ , Audi A6 China 2012 ➤ , Audi A7 Sportback 2011 ➤

4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve TFSI - generation III) - Edition 08.2017



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

00 – Technical data

1 Identification

(ARL005389; Edition 08.2017)

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Identification .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



2 Safety precautions

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Safety precautions .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Repair instructions

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair instructions .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

10 – Removing and installing engine

1 Removing and installing engine

⇒ “1.1 Removing engine”, page 4

⇒ “1.2 Securing engine to engine and gearbox support”,
page 20

⇒ “1.3 Installing engine”, page 20

1.1 Removing engine

Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-

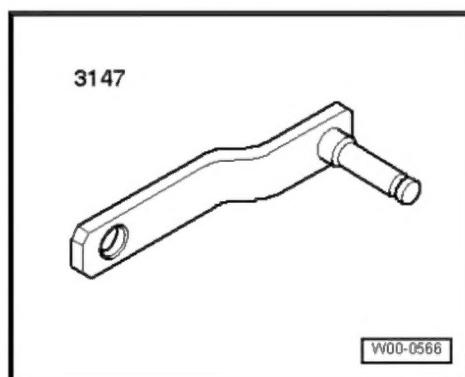


- ◆ Lifting tackle - 2024 A-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information provided. © AUDI AG.



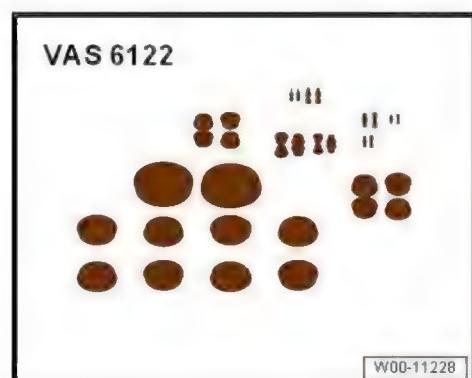
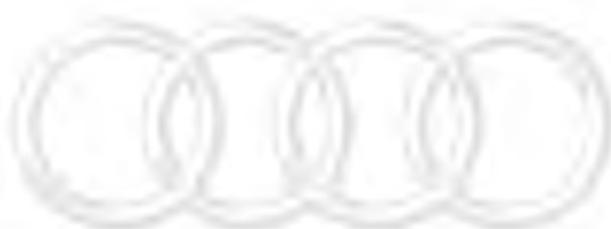
- ◆ Gearbox support - 3147-



◆ Workshop hoist - VAS 6100-



◆ Engine bung set - VAS 6122-



◆ Drip tray for workshop hoist - VAS 6208-

Protected by copyright. Copying and/or distributing in part or in whole without prior permission of AUDI AG is prohibited. All rights reserved.
With respect to the non-Audi vehicles information in this document, Audi AG
is not liable for damages resulting from its use.



◆ Hose clip pliers - VAS 6362-



◆ Protective gloves

◆ Safety goggles

Procedure



WARNING

Make sure the vehicle cannot tip over when the engine is removed.

- ◆ *Secure the vehicle, to do so, the luggage compartment must be empty.*



Note

- ◆ *The engine is removed upwards without gearbox.*
- ◆ *Re-install all cable ties in the same locations when installing.*
- ◆ *On four-wheel drive vehicles the electromechanical parking brake must be released before disconnecting the battery, so that the propshaft can be turned during removal.*



Caution

To prevent irreparable damage to the electronic components when disconnecting the battery:

- ◆ *Observe notes on procedure for disconnecting the battery.*

- Disconnect earth wire from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Carefully pull engine cover panel off retaining pins one after another -arrows-. Do not jerk engine cover panel away, and do not try to pull on one side only.



WARNING

The cooling system is under pressure when the engine is hot. Risk of scalding due to hot steam and hot coolant.

Danger of scalding skin and other parts of the body.

- *Put on protective gloves.*
- *Put on safety goggles.*
- *Cover filler cap on expansion tank with a cloth and open carefully to release pressure.*



A10-11902

- Open filler cap -arrow- on coolant expansion tank.



- Remove nuts -1- (accessible from above) for front silencer.



Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is prohibited.
The nut -2- and bolt -3- are removed at a later stage.

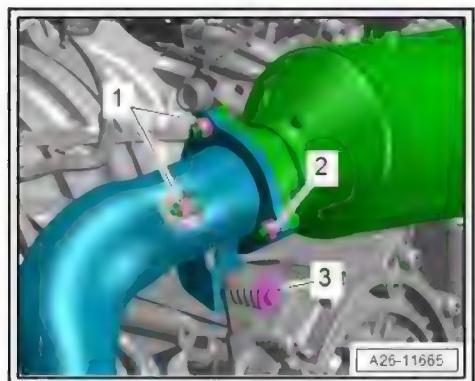
- Remove wheel housing liners (front left and front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove wheel spoilers (front) on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



Caution

Risk of damage to running gear components.

- ◆ *The vehicle must NOT be lowered onto its wheels if the engine/gearbox mountings, steering rack or subframe cross brace are not properly installed.*

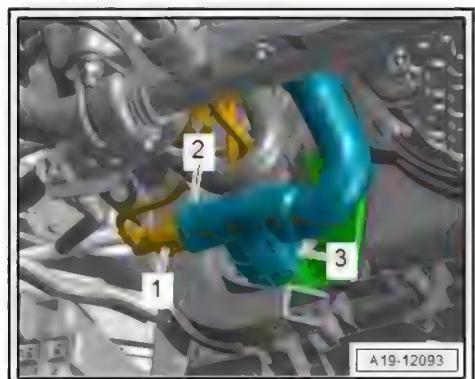


- Place drip tray for workshop hoist - VAS 6208- underneath.
- Unplug electrical connector -1- and move wiring clear.
- Lift retaining clip -3-, disconnect coolant hose from radiator (bottom left) and drain off coolant.



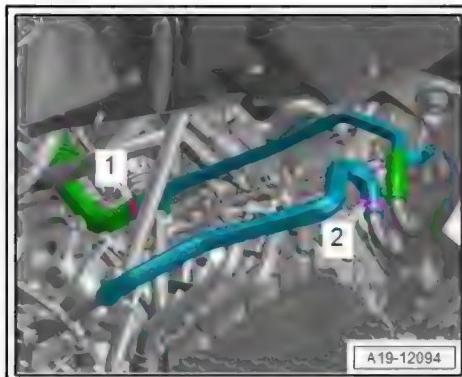
Note

Disregard -item 2-.



Vehicles with dual clutch gearbox 0CK:

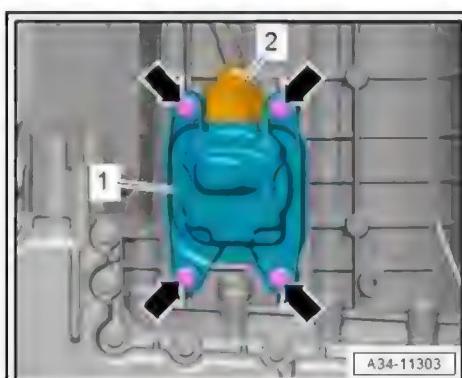
- Release hose clip -2-, disconnect coolant hose from gearbox and drain off coolant.
- Release hose clip -1- and detach coolant hose from coolant pipe (left-side) on gearbox.



- Unplug electrical connector -2- at gear oil pump -1-.



Disregard -arrows-.

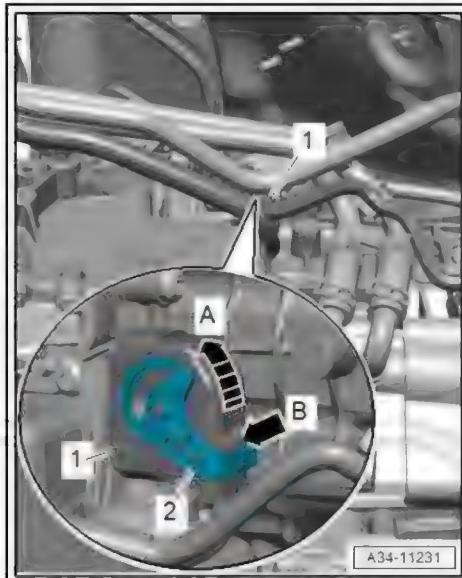


Caution

Risk of irreparable damage to gearbox control unit (mechantronic unit) because of electrostatic discharge.

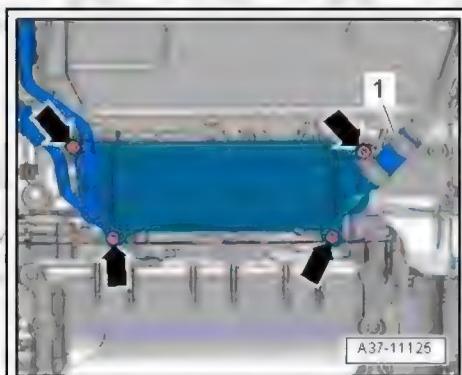
- ◆ Before unplugging or plugging in electrical connector, mechanic must discharge static electricity. To do so, touch vehicle earth, heater radiator, or lifting platform, with your hand.
- ◆ Do NOT touch connector contacts in gearbox connector with your hands.

- Unplug electrical connector -1- by pressing catch -arrow B- and pulling fastener -2- in direction of -arrow A-.
- Move electrical wiring harness clear at gearbox and at cross member.



Vehicles with dual clutch gearbox 0B5:

- Place drip tray for workshop hoist - VAS 6208- underneath.
- Release hose clip -1-, disconnect coolant hose from ATF cooler and drain off coolant.
- Remove bolts -arrows- and pivot ATF cooler to one side.



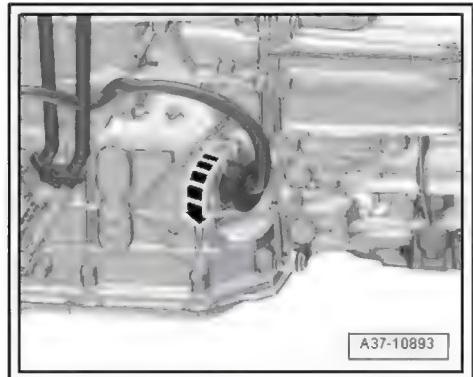
Protected by copy
permitted unless
otherwise indicated
by AUDI AG



Caution

Risk of irreparable damage to gearbox control unit (mechanical unit) because of electrostatic discharge.

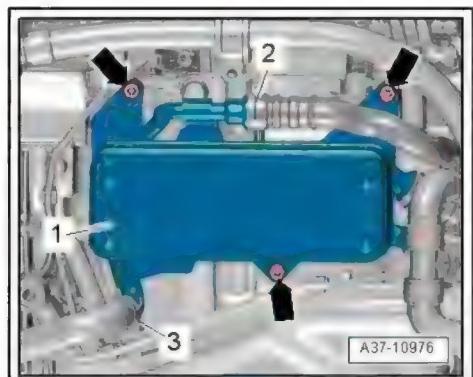
- ◆ Before unplugging or plugging in electrical connector, mechanic must discharge static electricity. To do so, touch vehicle earth, heater radiator, or lifting platform, with your hand.
- ◆ Do NOT touch connector contacts in gearbox connector with your hands.



- Turn retainer catch anti-clockwise -arrow- and unplug electrical connector at gearbox.
- Move electrical wiring harness clear at gearbox.

Vehicles with automatic gearbox 0BK:

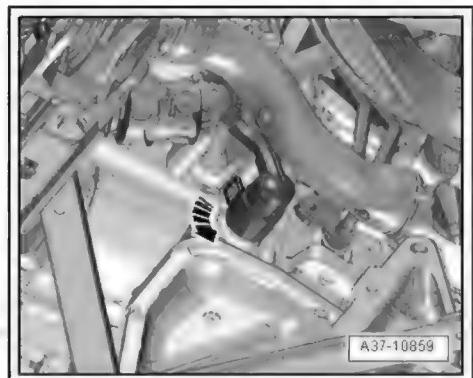
- Place drip tray for workshop hoist - VAS 6208- underneath.
- Release hose clip -3-, disconnect coolant hose from ATF cooler and drain off coolant.
- Remove bolts -arrows- and tie up ATF cooler -1- to side with coolant hose -2- attached.
- Seal off open lines and connections with plugs (thoroughly cleaned) from engine bung set - VAS 6122- .



Caution

Risk of irreparable damage to gearbox control unit (mechanical unit) because of electrostatic discharge.

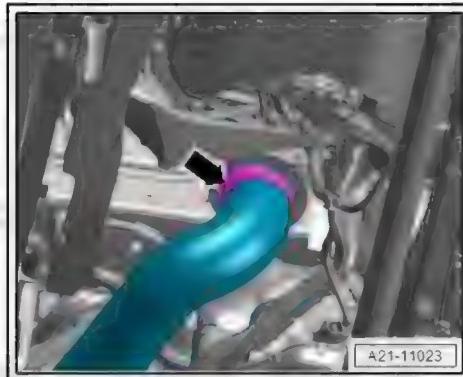
- ◆ Before unplugging or plugging in electrical connector, mechanic must discharge static electricity. To do so, touch vehicle earth, heater radiator, or lifting platform, with your hand.
- ◆ Do NOT touch connector contacts in gearbox connector with your hands.



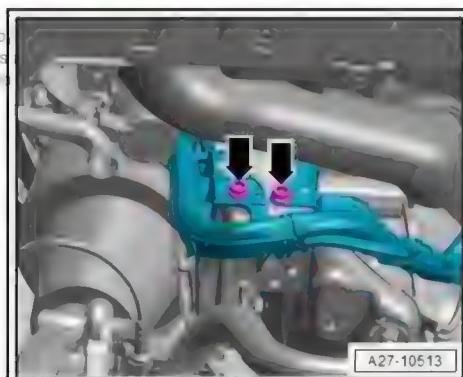
- Turn retainer catch anti-clockwise -arrow- and unplug electrical connector at gearbox.
- Move electrical wiring harness clear at gearbox.

Continued for all vehicles:

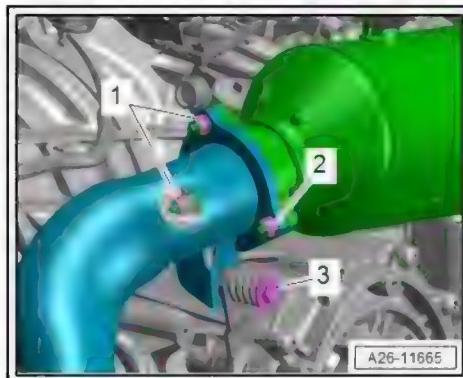
- Release hose clip -arrow-, disconnect air hose and press to one side.



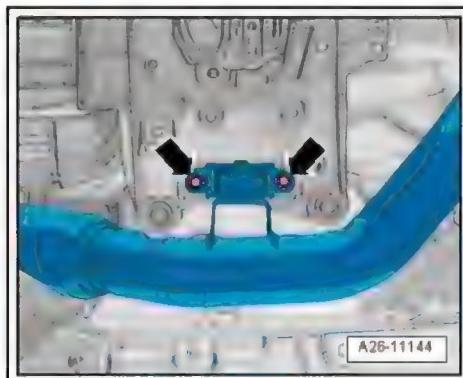
- Remove bolts -arrows- from bracket for B+ wire and earth wire at longitudinal member (right-side).



- Remove nut -2- and bolt -3- for front silencer.



- Remove bolts -arrows- for front exhaust pipe.



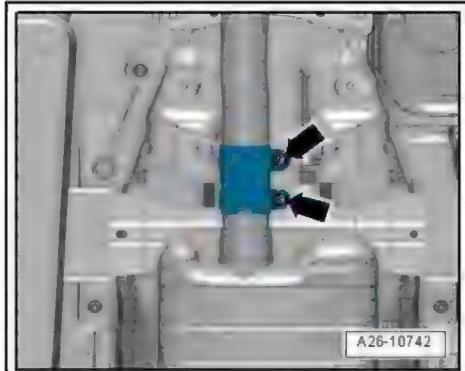


Caution

Risk of damage to flexible joints in front silencer.

- ◆ *Do NOT bend the flexible joints in the front silencer more than 10°.*

- Unfasten connections -arrows-, push clamp towards rear and detach front silencer.
- Detach bottom cover -1- from gearbox -arrow-.

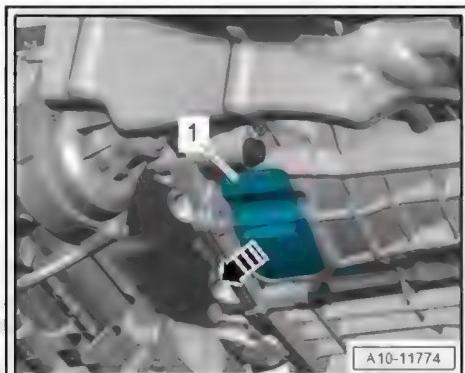


A26-10742



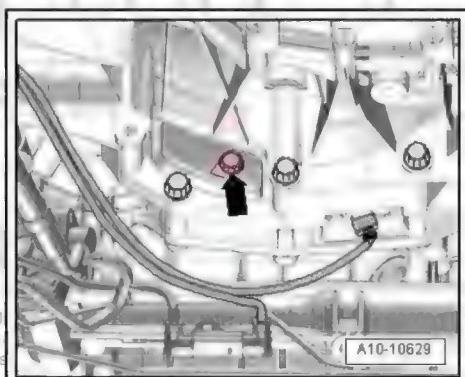
Note

When performing the next step, turn the crankshaft only in the normal direction of rotation.



A10-11774

- Remove 3 bolts -arrow- for flywheel, turning crankshaft 120° in normal direction of rotation each time.



Protected by copyright. Copying
permitted unless authorised by
with respect to the correctness

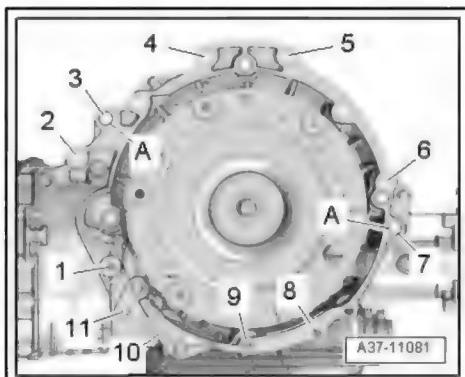
A10-10629

- Remove bolts -1- and -6 ... 11- securing engine to gearbox.



Note

- ◆ *The illustration shows automatic gearbox 0BK.*
- ◆ *Number and installation position of bolts for other gearboxes
⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox;
Tightening torques for gearbox .*
- ◆ *Disregard -item A-.*



A37-11081

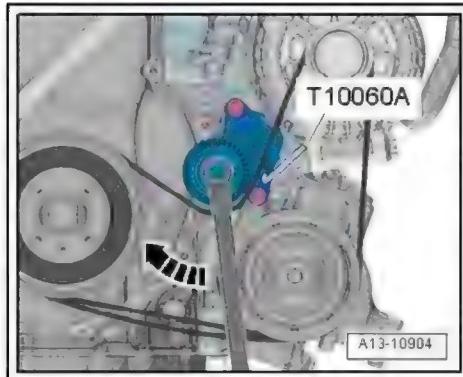


Caution

Wrong direction of rotation for a used poly V-belt can lead to irreparable damage.

- ◆ Before removing the poly V-belt mark the direction of rotation with chalk or a felt-tip pen for re-installation.

- Swivel tensioner in clockwise direction -arrow-, detach poly V-belt from pulley for air conditioner compressor and release tensioner.
- Take off poly V-belt.



Note

Ignore -T10060A- .

- Unplug electrical connector -1- and move wiring clear.

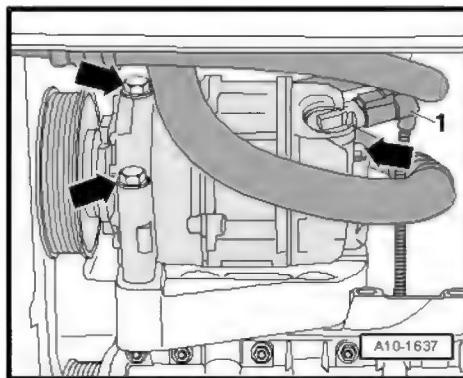


WARNING

Risk of injury caused by refrigerant.

- ◆ The air conditioner refrigerant circuit must not be opened.

- Remove bolts -arrows- for air conditioner compressor.



Caution

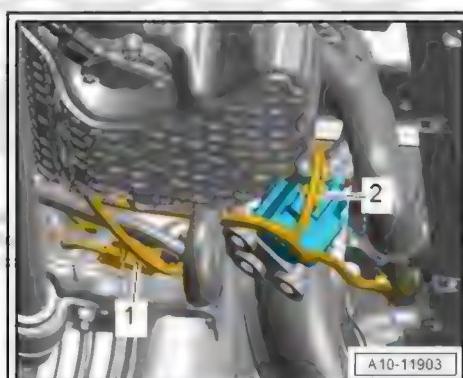
Danger of damage to refrigerant lines and hoses.

- ◆ Do NOT stretch, kink or bend refrigerant lines and hoses.

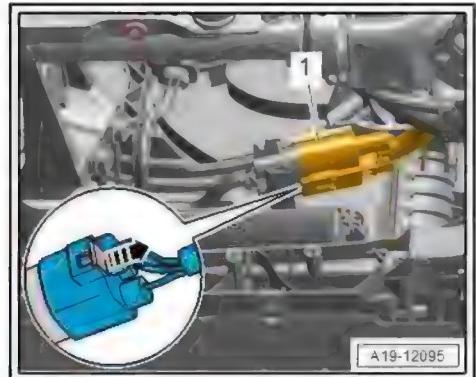
- Tie up air conditioner compressor together with lines to one side (lines remain connected).

- Unplug electrical connectors and move wiring clear:

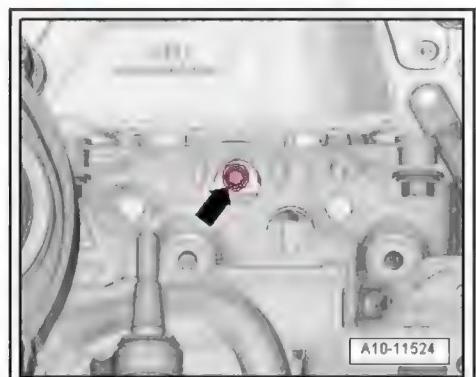
- 1 - For left electrohydraulic engine mounting solenoid valve - N144- / right electrohydraulic engine mounting solenoid valve - N145- (depending on gearbox)
- 2 - For continued coolant circulation pump - V51-



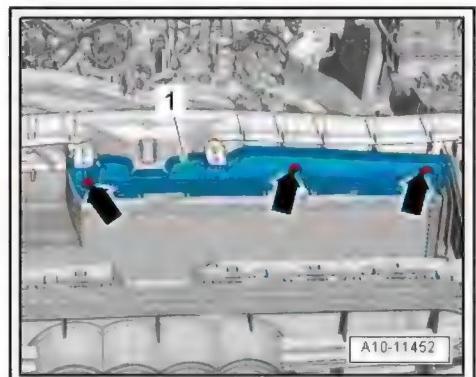
- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).
- Move clear electrical wiring harness going to radiator fan control unit.



- Remove bolt for engine mountings -arrow- on both sides.



- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -1-.

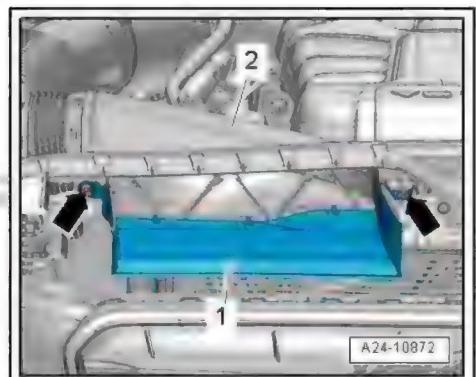


- Remove bolts -arrows- and detach air duct -2- from lock carrier.

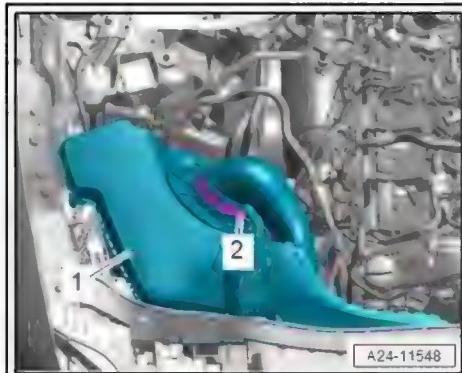


Note

Disregard item 1.
Protected by copyright. For private use only. Not for commercial use. Not for download. © AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG



- Release hose clip -2- and detach air hose.
- Lift off air cleaner housing -1-.

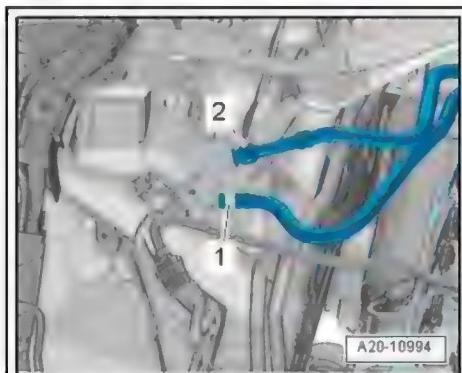


WARNING

The fuel system is pressurised.

Risk of injury as fuel may spray out.

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).



- Disconnect fuel line -2- ⇒ Fuel supply system; Rep. gr. 20 ;
Plug-in connectors; Disconnecting plug-in connectors .
- Release hose clip -1- and disconnect hose from activated charcoal filter.
- Lift retaining clips -1- and -2- and disconnect coolant hoses.

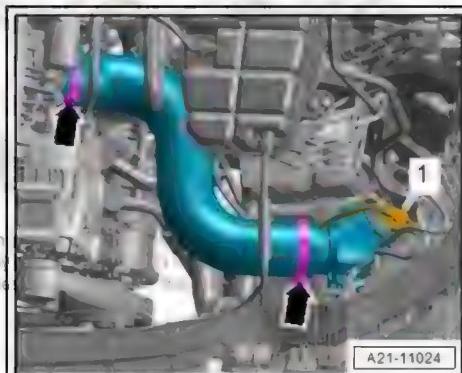


Note

Disregard -item 3-.



- Release hose clips -arrows- and remove air hose.
- Unplug electrical connector for charge pressure sender - G31-
-item 1- and move electrical wiring clear.



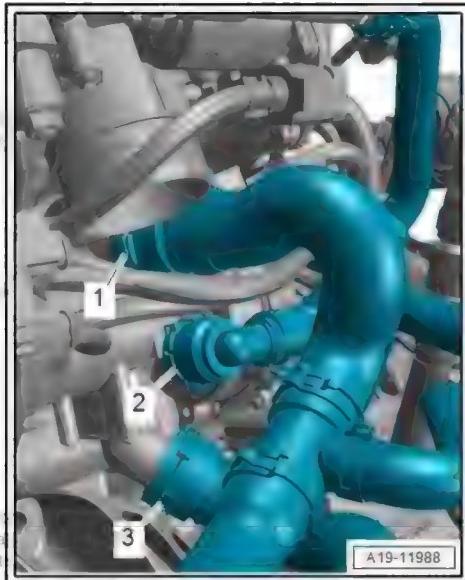
Protected by copyright. Copying
permitted unless authorised by
the copyright holder
with respect to the correct
use of the work.

- Release retaining clips -1, 3- and disconnect coolant hoses.



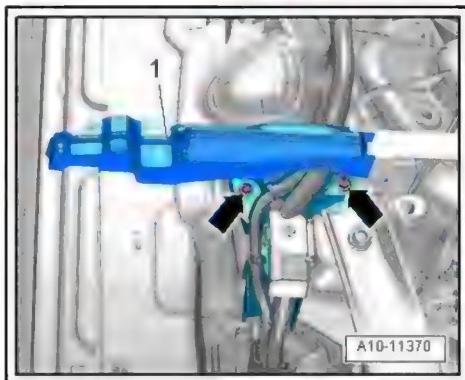
Note

Disregard -item 2-.

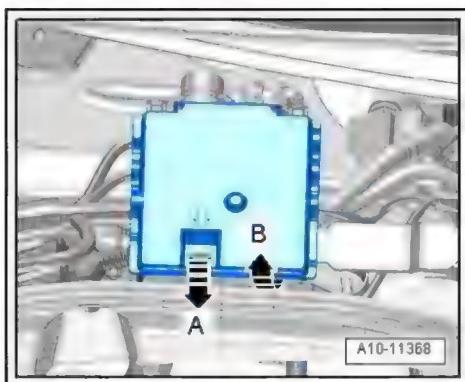


Printed by AUDI AG. Copying, publishing, translating or otherwise utilising the contents of this document is only permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any responsibility with respect to the correctness of information in this document. Copyright © AUDI AG 2017
 A19-11988

- Press foam wedge -1- to one side.
- Remove bolts -arrows-.
- Remove body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace .



- Release retainer -arrow A- and open cover -arrow B-.

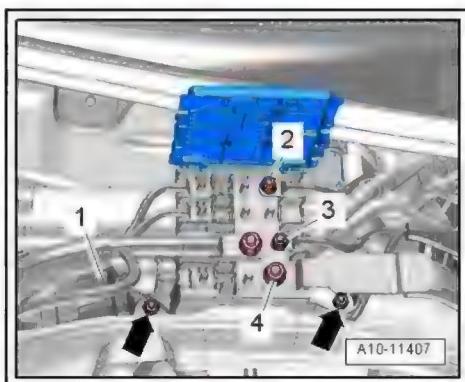


- Remove nuts -3 and 4- and move electrical wiring clear.
- Detach electrical connector -1- from bracket and unplug.
- Remove nuts -arrows- and detach terminal 30 wiring junction - TV2- from plenum chamber partition panel.



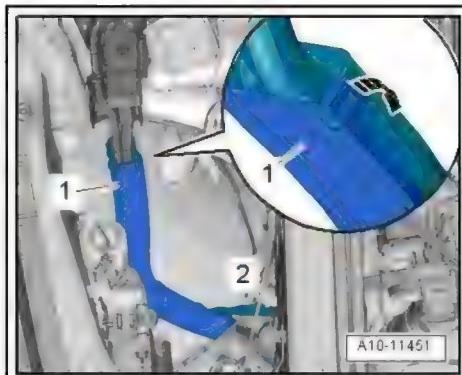
Note

Disregard -item 2-.

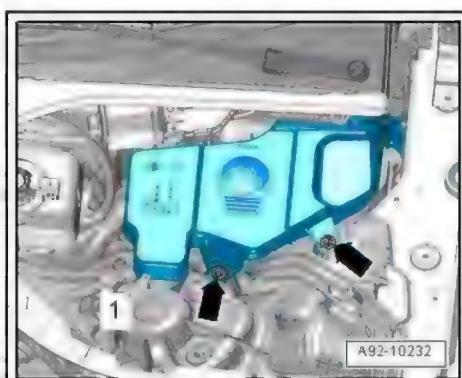




- Unscrew nut -2- on longitudinal member (right-side) and move earth cables clear.
- Release catch -arrow- to open wiring duct -1- and move electrical wiring harness clear.

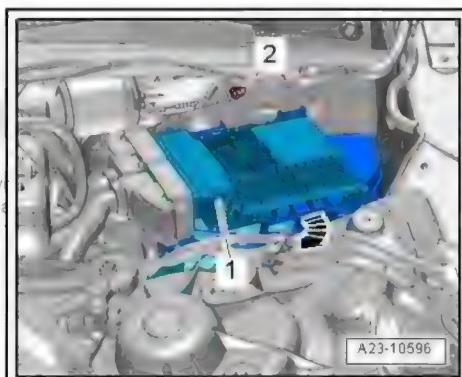


- Unscrew bolts -arrows- and pull filler neck -1- out of washer fluid reservoir and through opening in body to right side.

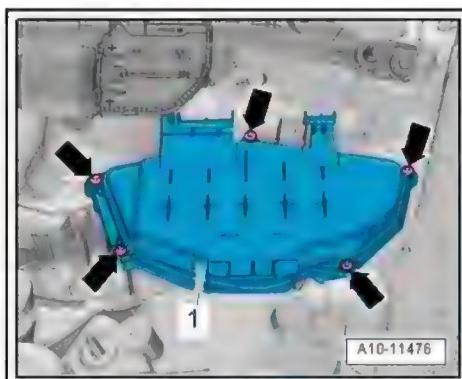


- Remove cap nut -2- and move earth wiring clear.
- Release fastener -arrow-, detach engine control unit - J623- item 1- from bracket and swivel it to one side.

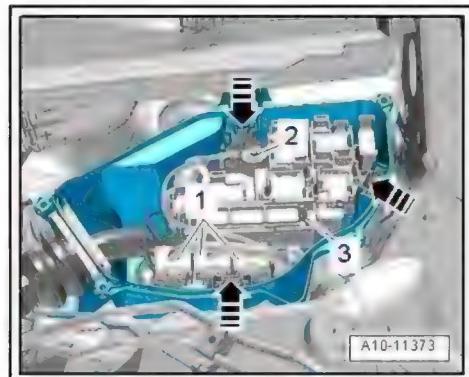
Protected by copyright. All rights reserved. Any unauthorized copying or reproduction of this document in whole, is not permitted unless a license is granted by AUDI AG.



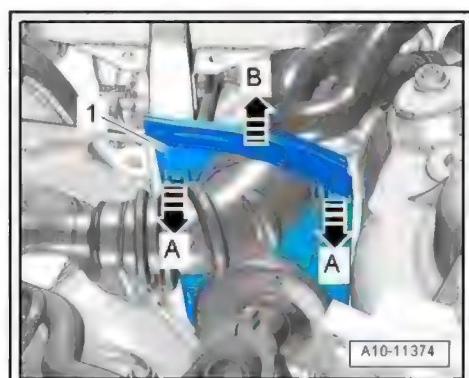
- Remove bolts -arrows- and detach cover -1- for electronics box in plenum chamber.



- Unplug electrical connectors -1- and unscrew nut -2- for electrical wiring.
- Release catches -arrows- and detach relay carrier with fuse holder -3-.
- Disengage engine wiring harness at electronics box in plenum chamber and move clear.



- Release catches -arrows A- and lift off wiring protector -1- -arrow B-.
- Place wiring harness on engine and secure engine/motor control unit - J623- to prevent it from dropping.



Vehicles with manual gearbox:

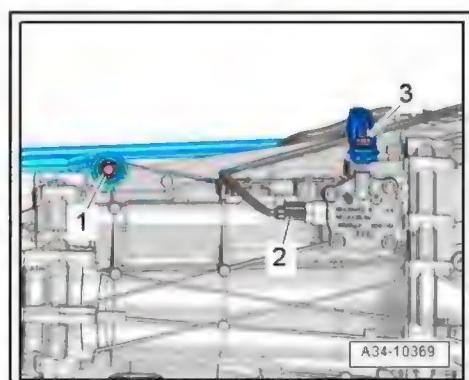
- Unplug electrical connector -2- at gear detection sensor - G604- and move electrical wiring clear.



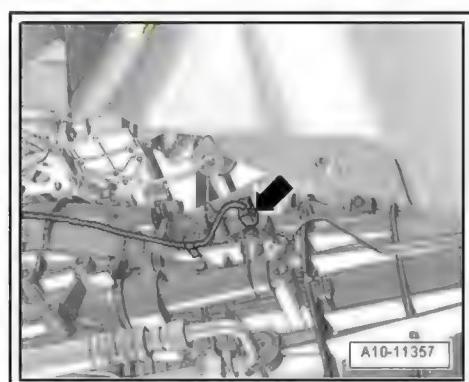
Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for any damage that may arise directly or indirectly as a result of using this document.

Disregard items -1 and 3-



- If fitted, unplug electrical connector -arrow- for gearbox neutral position sender - G701- and move wiring clear.

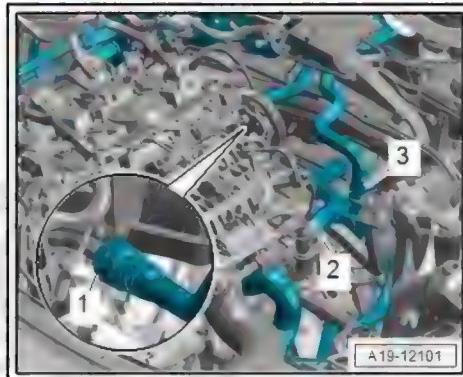


Vehicles with manual gearbox/dual clutch gearbox 0B5/automatic gearbox 0BK:

- Lift retaining clips -1 and 3-, disconnect coolant hoses and guide them through plenum chamber partition panel.

Vehicles with dual clutch gearbox 0B5/automatic gearbox 0BK:

- Release hose clip -2- and disconnect coolant hose.

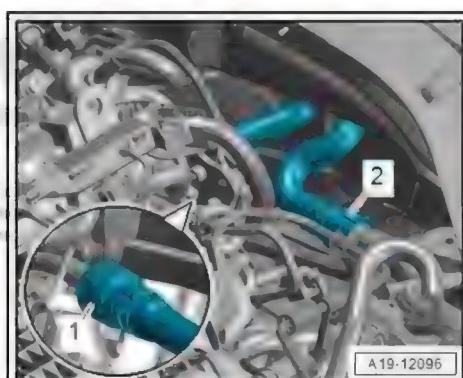


Vehicles with dual clutch gearbox 0CK:

- Lift retaining clips -1 and 2-, disconnect coolant hoses and guide them through plenum chamber partition panel.

Continued for all vehicles:

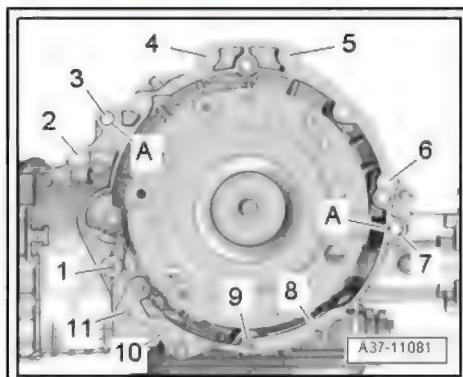
- Remove plenum chamber partition panel → General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



- Remove bolts -2 ... 5- securing gearbox to engine.

Note

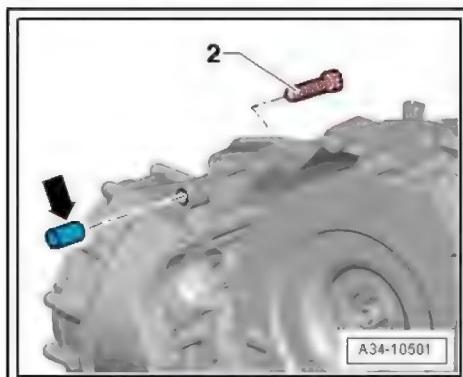
- ◆ The illustration shows automatic gearbox 0BK.
- ◆ Number and installation position of bolts for other gearboxes → Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox .
- ◆ Disregard -item A-.



Note

Bolt -2- secures the starter to the gearbox and is provided with an additional spacer sleeve -arrow-.

- Set up support bracket - 10-222A- at top of longitudinal members for wheel housing (left and right), as shown in illustration.

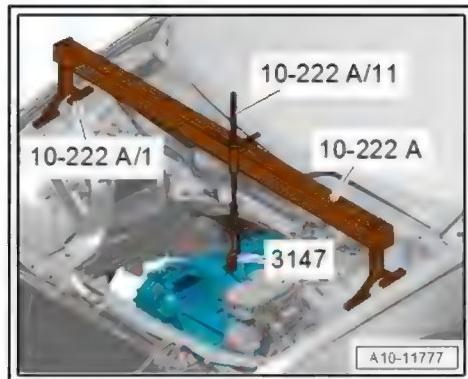


- Attach gearbox support - 3147- to gearbox and to spindle - 10-222A/11- .



For illustration purposes, the installation position is shown with the engine removed.

- Take up weight of gearbox with spindle of support bracket.



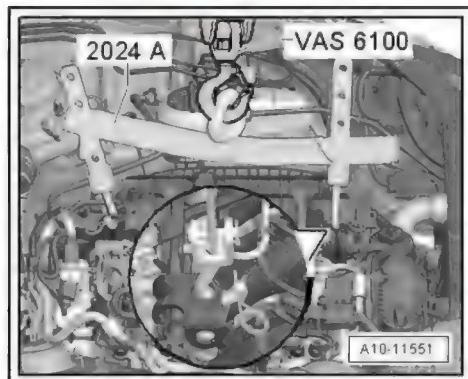
- Attach lifting tackle - 2024 A- to engine and workshop hoist - VAS 6100- as shown in illustration.



WARNING

Accident risk from loose components of lifting tackle.

- ◆ *The support hooks and retaining pins on the lifting tackle must be secured with locking pins.*



To adjust to the centre of gravity of the assembly, the perforated rails of the support hooks must be positioned as shown.

- Raise engine until engine mountings are clear.
- Tighten spindle of support bracket - 10-222A- further.



Caution

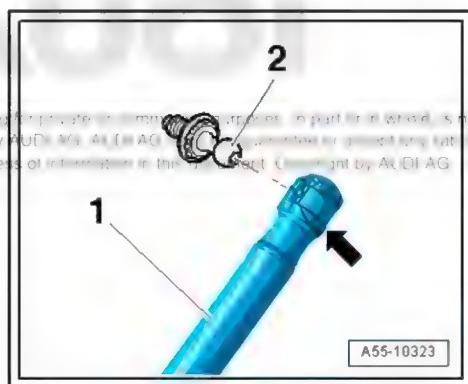
Danger of damage to hoses, pipes and wiring connections and to engine compartment.

- ◆ *Check that all hoses and wiring connections between engine, gearbox, subframe and body have been detached.*
- ◆ *Carefully guide engine out of engine compartment when lifting out.*



A second mechanic is required to carefully open bonnet as much as possible when lifting engine out.

- Use small screwdriver to slightly lift retaining clip -arrow- at both ends and detach gas strut -1- from ball stud -2- at top.
- Separate engine from gearbox and lift engine out of engine compartment.
- Press gas struts back onto ball studs.





1.2 Securing engine to engine and gearbox support

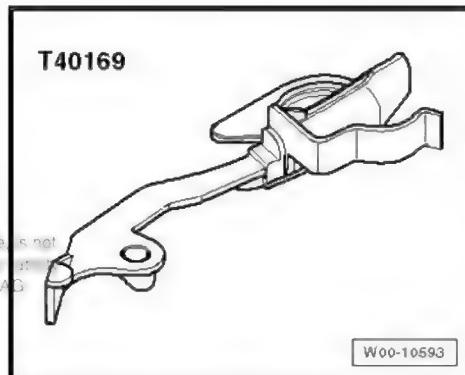
All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Removing and installing engine; Securing engine to engine and gearbox support .

1.3 Installing engine

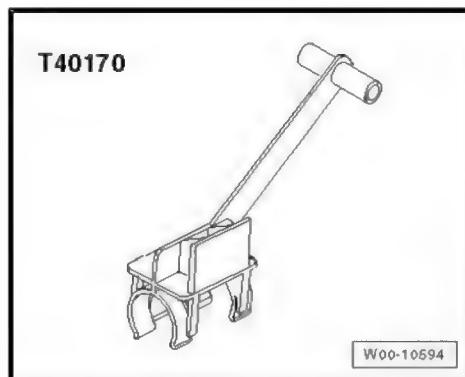
Special tools and workshop equipment required

- ◆ Assembly aid - T40169-

Protective equipment must be worn when working on power units in vehicles. It is not permitted to work on vehicles by Audi AG, Audi AG and its service partners without respect to the current safety information in the document "Safety" published by AUDI AG.



- ◆ Transport lock - T40170-



Tightening torques



Note

- ◆ *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- ◆ *Additional lubricants such as engine or gear oil may be used, but do not use lubricants containing graphite.*
- ◆ *Do not use degreased parts.*
- ◆ *Tolerance for tightening torques: ± 15 %.*

Component		Nm
Bolts/nuts	M6	9
	M8	20
	M10	40
	M12	65

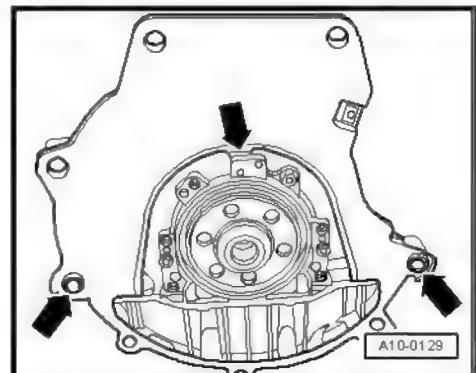
- ◆ ⇒ ["2.1 Exploded view - assembly mountings", page 27](#)
- ◆ Engine to gearbox ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox / ⇒ Gear-

box; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox

Procedure

 Note

- ◆ After removing, renew bolts tightened with specified tightening angle.
- ◆ Renew self-locking nuts and bolts as well as seals, gaskets and O-rings after removal.
- ◆ Hose connections and hoses for charge air system must be free of oil and grease prior to fitting.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- ◆ To secure the charge air hoses at their connections, spray rust remover onto the worm thread of the used hose clips before installing.
- ◆ Re-install all cable ties in the same locations when installing.
- Ensure that intermediate plate is engaged on sealing flange and pushed onto dowel sleeves -arrows-.

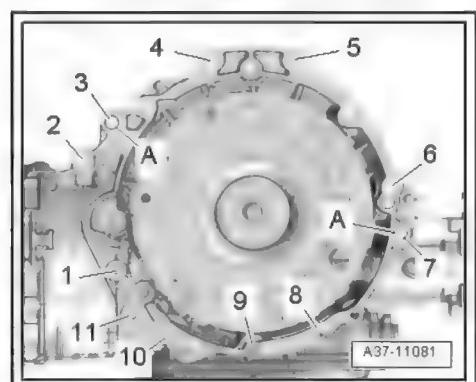


- Check whether dowel sleeves -A- for centring engine and gearbox are fitted in cylinder block; install missing dowel sleeves.

 Note

The illustration shows automatic gearbox OBK.

- Check whether aluminium bolts securing engine to gearbox can be reused; if so, apply marking ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox .



Vehicles with manual gearbox:

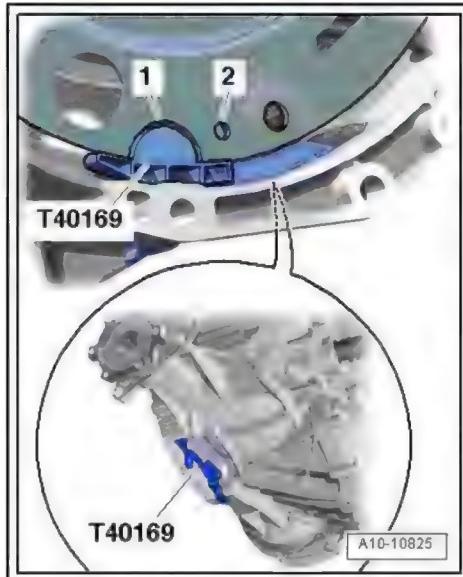
- Check that needle bearing is fitted in drive plate. Removing and installing needle bearing in drive plate (pressing in and out) ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .

Vehicles with manual gearbox or dual clutch gearbox:

- The following preparations are required before joining engine and gearbox:
- Insert assembly aid - T40169- into gearbox housing and flywheel from below, as illustrated.
- The assembly aid -T40169- must engage in the semi-circular recess -1- and in the inspection hole -2-.



There is only one inspection hole on the circumference; turn the clutch module accordingly.



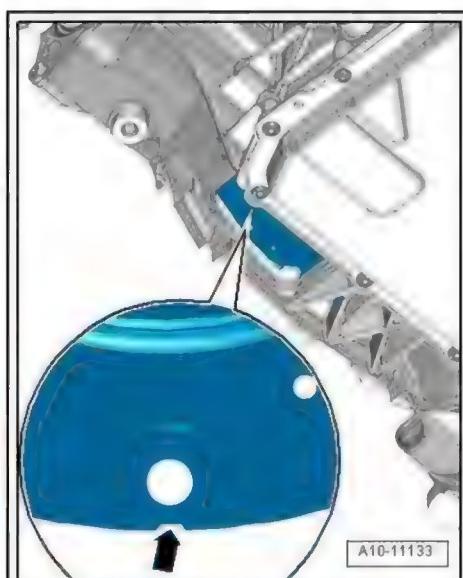
Vehicles with automatic gearbox 0BK:

- The following preparations are required before joining engine and gearbox:
- Turn torque converter until hole is visible next to notch -arrow in recess in bottom of gearbox housing, as shown in illustration.

Illustration is not binding unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG

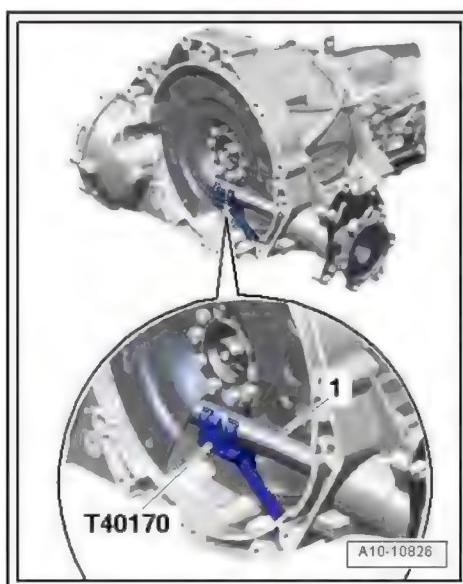


There is only one notch on the circumference; turn the torque converter accordingly.



Continued for all vehicles:

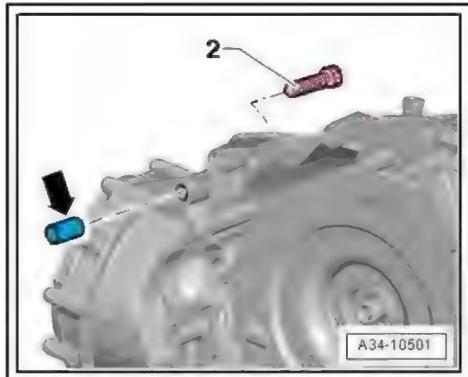
- Insert transport lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.





Note

- ◆ Bolt -2- secures the starter to the gearbox and is provided with a spacer sleeve -arrow-.
- ◆ Pay attention to the spacer sleeve -arrow- when removing and installing the engine. The spacer sleeve must be fitted between starter and gearbox.

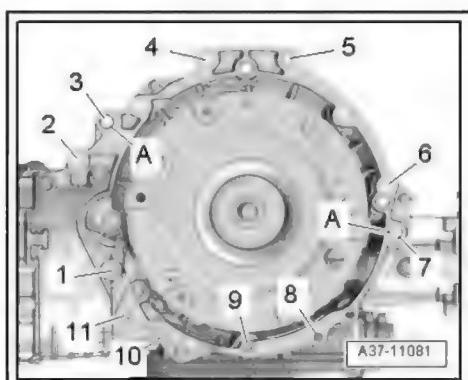


- Bring gearbox into position on engine and tighten bolts -1 ... 11- securing engine to gearbox. Tightening torques ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox

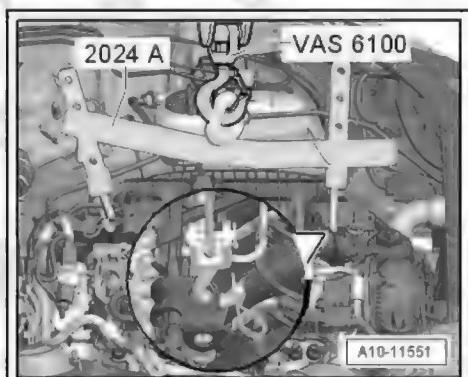


Note

- ◆ The illustration shows automatic gearbox 0BK.
- ◆ Number and installation position of bolts for other gearboxes ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox .



- Release spindle of support bracket - 10-222 A- .
- Lower workshop hoist and place engine/gearbox assembly onto engine mounting.

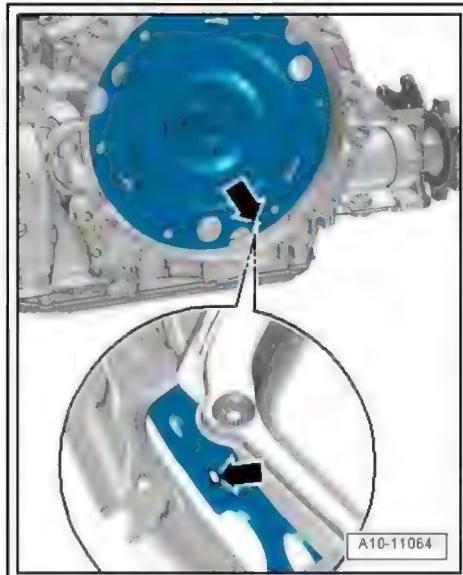


- Fit bolt -arrow- for left and right engine mountings.
- Detach workshop hoist - VAS 6100- and lifting tackle - 2024 A- .
- Screw in and tighten remaining bolts securing engine to gearbox.



Vehicles with manual gearbox:

- Fit front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Engage 4th gear and turn front wheels in direction of travel until flywheel is rotated by one complete turn (360°).
- The inspection hole -arrow- should be visible again in the recess on the gearbox housing.



Continued for all vehicles:

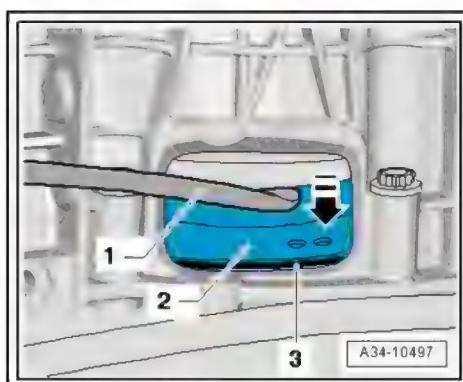
- Remove transport lock - T40170- and assembly aid - T40169- .



Note

The following step is necessary to ensure that the flywheel/torque converter is straight and that it makes even contact with the drive plate.

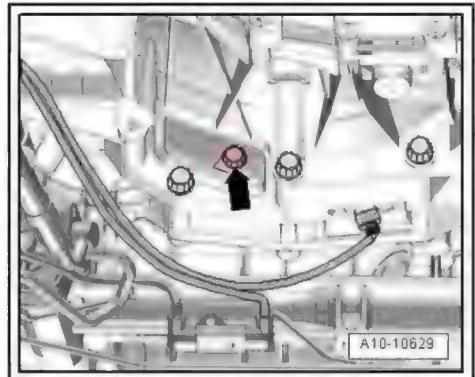
- Use assembly lever -1- to press flywheel/torque converter -2- slightly against drive plate -3- in direction of -arrow-.



Tightening sequence - flywheel/torque converter to drive plate

- Screw in first bolt -arrow- hand-tight.
- Turn crankshaft by 120° in direction of engine rotation and fit second bolt hand-tight.
- Turn crankshaft by 120° in direction of engine rotation once again.
- Now tighten third bolt to specified torque ⇒ Gearbox; Rep. gr. 30 ; Clutch; Exploded view - clutch module or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox .
- Then tighten remaining bolts to final torque.

The remaining installation steps are carried out in the reverse sequence.



[Install exhaust system](#) ⇒ [page 128](#)

- Install air conditioner compressor ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Detaching and attaching air conditioner compressor at bracket .
- Install poly V-belt ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install electrical wiring, terminal 30 wiring junction 2 - TV22-and cover for electronics box in plenum chamber ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .

[Install engine control unit](#) ⇒ [page 125](#)

- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Exploded view - windscreen washer system .
- Install body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Install air cleaner housing ⇒ [page 114](#) .
- Install lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Install ATF cooler ⇒ Gearbox; Rep. gr. 34 ; ATF circuit; Removing and installing ATF cooler / ⇒ Gearbox; Rep. gr. 37 ; ATF circuit; Removing and installing ATF cooler .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Caution

Risk of irreparable damage to control units because of excessive voltage.

- ◆ *Never use battery charging equipment for boost starting.*

- Install air cleaner housing [⇒ page 114](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Check oil level ⇒ Maintenance ; Booklet 411 or ⇒ Maintenance ; Booklet 412 .
- Connect coolant hose with plug-in connector [⇒ page 91](#) .

 Note

Protecting copyright. Copying for private research purposes is permitted. Work must not
perpetuate any unauthorized changes. Audi AG, Audi (UK) Ltd. and their suppliers do not accept any liability
with respect to the completeness of the information in this document. Copyright by AUDI AG.

- Fill up with coolant [⇒ page 62](#) .
- Install subframe cross brace ⇒ Running gear, axles, steering;
Rep. gr. 40 ; Subframe; Removing and installing subframe
cross brace .
- Install wheel spoilers and wheel housing liners ⇒ General
body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Ex-
ploded view - wheel housing liner (front) .
- After renewing engine
- ◆ Adapt chain elongation ⇒ Vehicle diagnostic tester ; [Guided Functions](#); [01 - Chain elongation adaption diagnosis](#).
- ◆ Reset misfire adaptions ⇒ Vehicle diagnostic tester, [Guided Functions](#), [01 - Reset adaptions misfires](#).

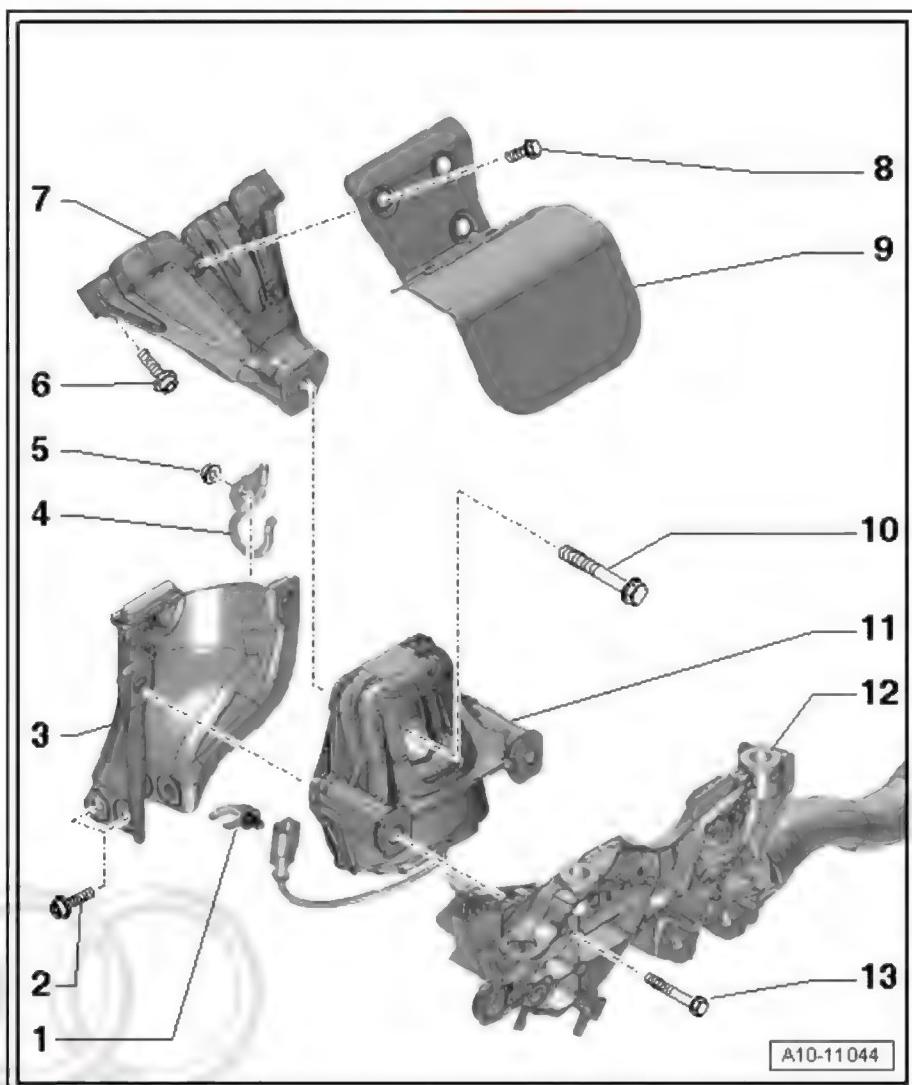
2 Assembly mountings

- ⇒ "2.1 Exploded view - assembly mountings", page 27
- ⇒ "2.2 Supporting engine in installation position", page 31
- ⇒ "2.3 Removing and installing engine mountings", page 32
- ⇒ "2.4 Removing and installing gearbox mounting", page 34

2.1 Exploded view - assembly mountings

Engine mounting

- 1 - Not fitted
- 2 - Bolt
 - 20 Nm
- 3 - Retaining plate
 - For engine mounting
 - Renew retaining plate if engine mounting is defective
 - Check retaining plate on opposite side; renew if necessary
- 4 - Not fitted
- 5 - Not fitted
- 6 - Bolt
 - 40 Nm
- 7 - Engine support
- 8 - Bolt
 - 10 Nm
- 9 - Heat shield
- 10 - Bolt
 - Renew after removing
 - 90 Nm +90°
- 11 - Engine mounting
 - Depending on gearbox: with left electrohydraulic engine mounting solenoid valve - N144- / right electrohydraulic engine mounting solenoid valve - N145-
 - Removing and installing ⇒ page 32
- 12 - Subframe
- 13 - Bolt
 - 55 Nm



A10-11044

1 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

2 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

3 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

4 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

5 - Gearbox support

- Removing and installing ⇒ [page 35](#)

6 - Gearbox mounting

- Removing and installing ⇒ [page 34](#)

7 - Stop (bottom)

- For gearbox mounting

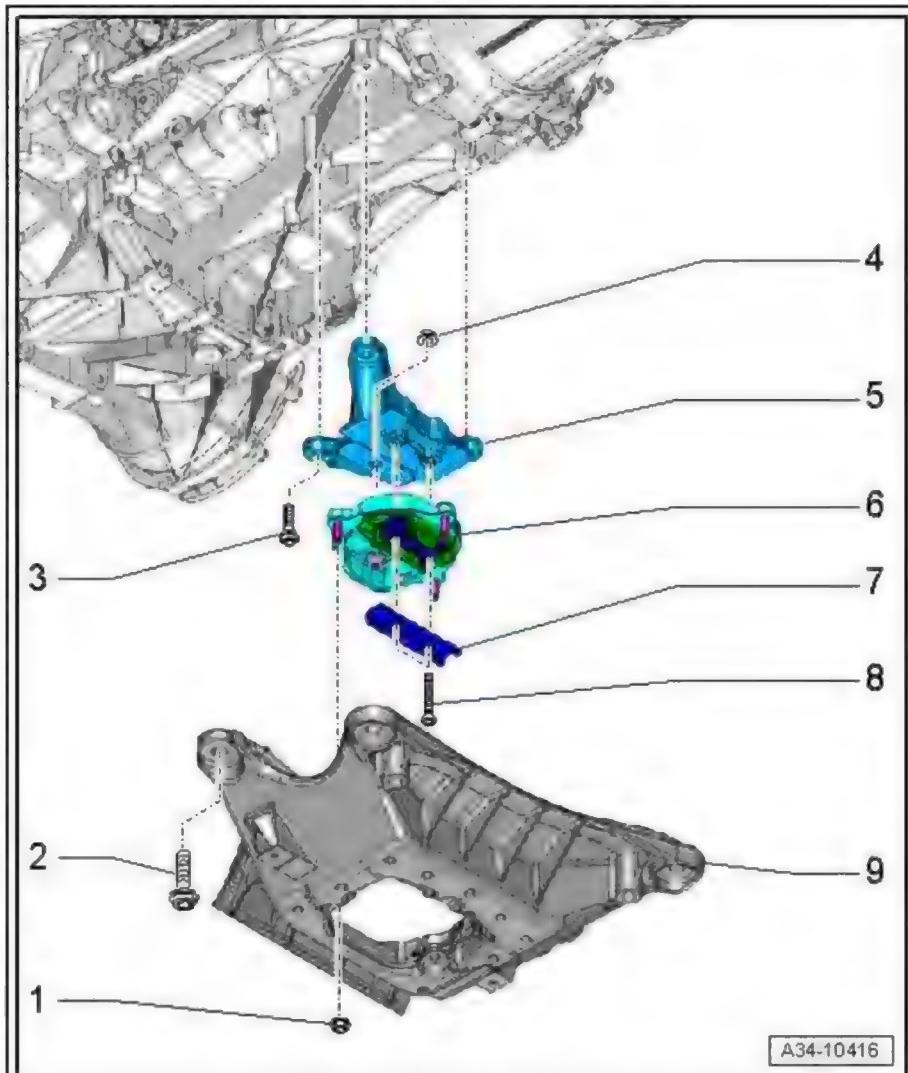
8 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

9 - Tunnel cross member

- Removing and installing ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

Gearbox mounting for dual clutch gearbox 0CK



Printed by Audi AG. © Audi AG. All rights reserved. Any part of this document which is not
 printed in accordance with the laws of Audi AG (e.g. reproduction, modification, distribution) may incur
 any liability without exception for the unauthorized use of information in this document. Copyright by AUDI AG.

1 - Tunnel cross member

- Removing and installing
⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

2 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

3 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

4 - Gearbox support

5 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

6 - Gearbox mounting

- Removing and installing
⇒ [page 35](#)

7 - Stop plate

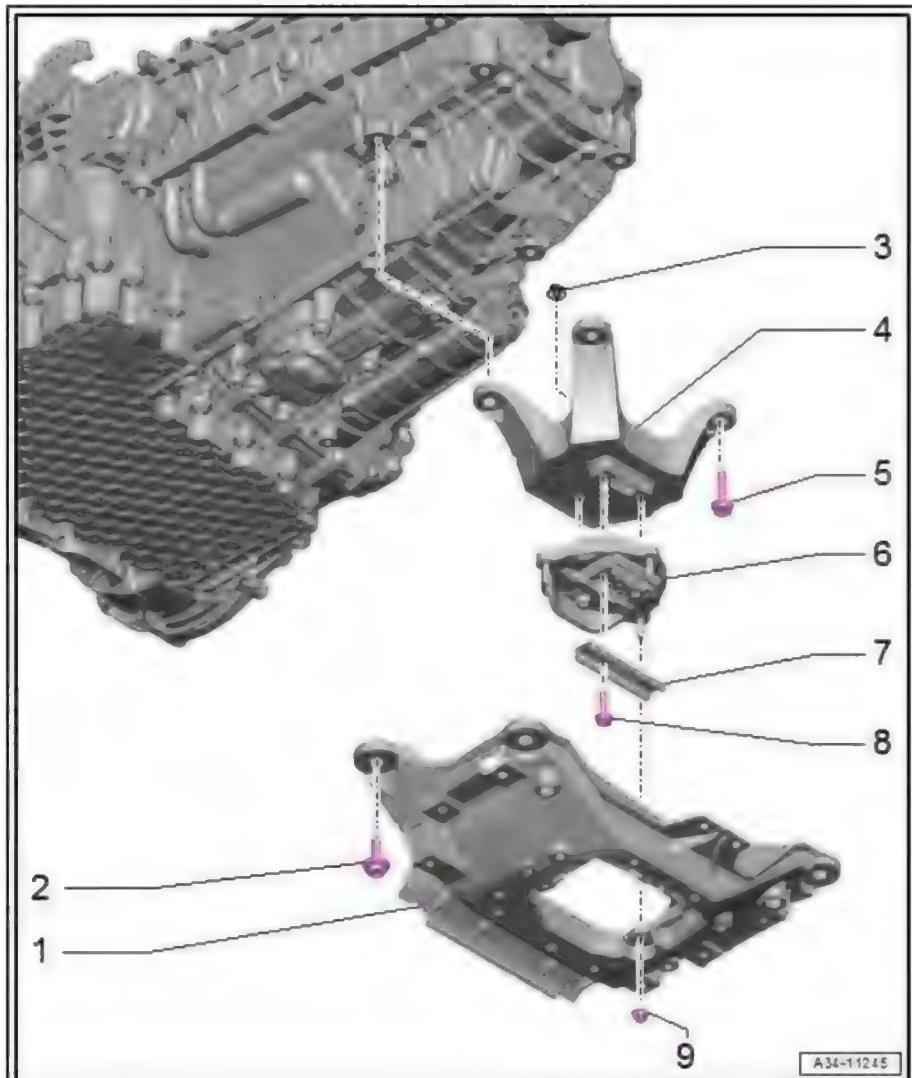
- For gearbox mounting

8 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

9 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



A34-11245

Gearbox mounting for dual clutch gearbox 0B5/automatic gearbox 0BK

1 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

2 - Tunnel cross member

- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Removing and installing ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

3 - Stop plate

- For gearbox mounting

4 - Gearbox mounting

- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Removing and installing ⇒ [page 36](#)

5 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings**

6 - Nut

- Only remove if detaching gearbox mounting from gearbox support
- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

7 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

8 - Gearbox support

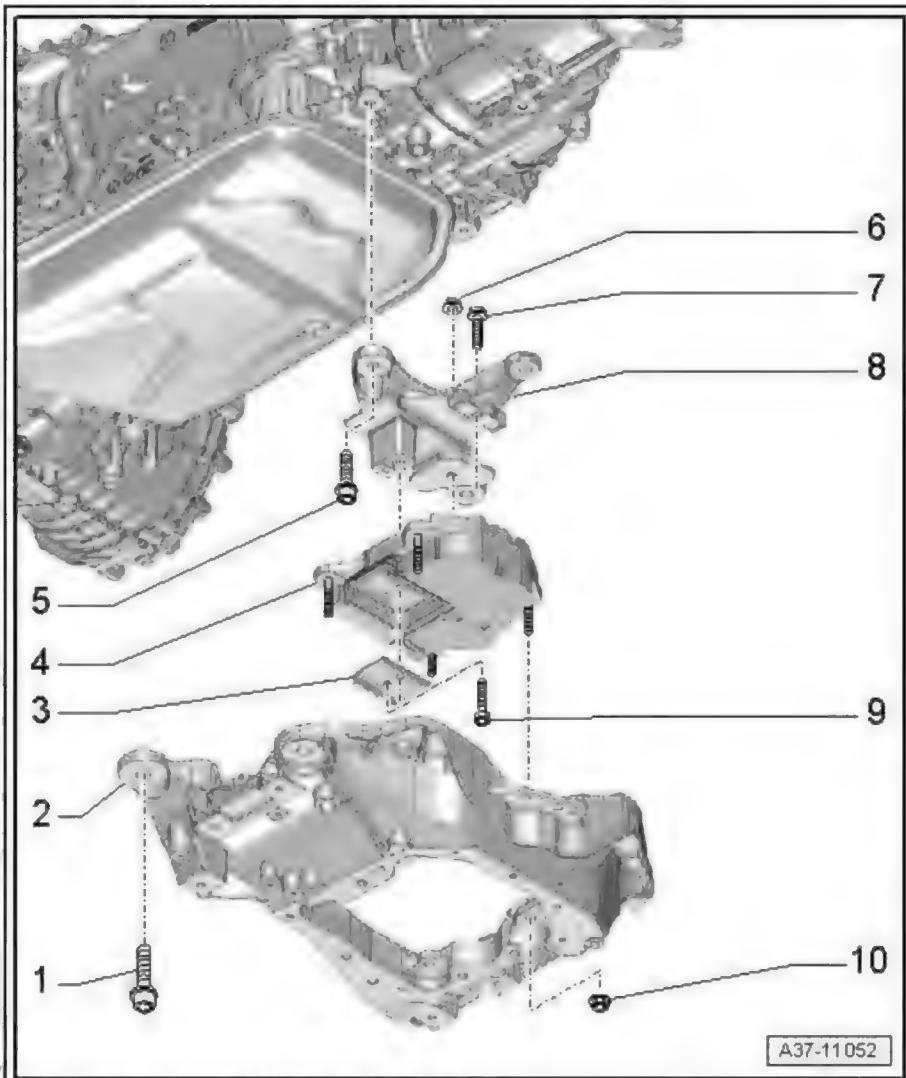
- Different versions available; for correct version refer to ⇒ Electronic parts catalogue
- Removing and installing ⇒ [page 36](#)

9 - Bolt

- Only remove if detaching gearbox mounting from gearbox support
- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

10 - Nut

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings



2.2 Supporting engine in installation position

Special tools and workshop equipment required

- ◆ Support bracket - 10-222A-

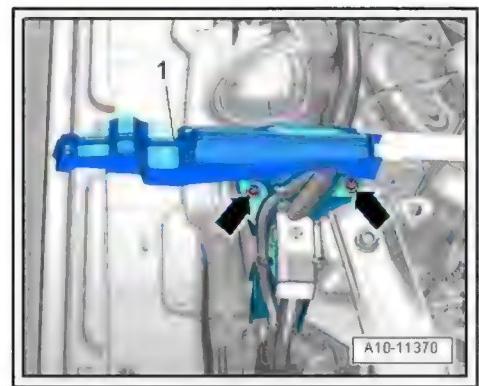


Procedure

- Tunnel cross member installed.
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove foam wedge -1- on both sides.



Disregard -arrows-.

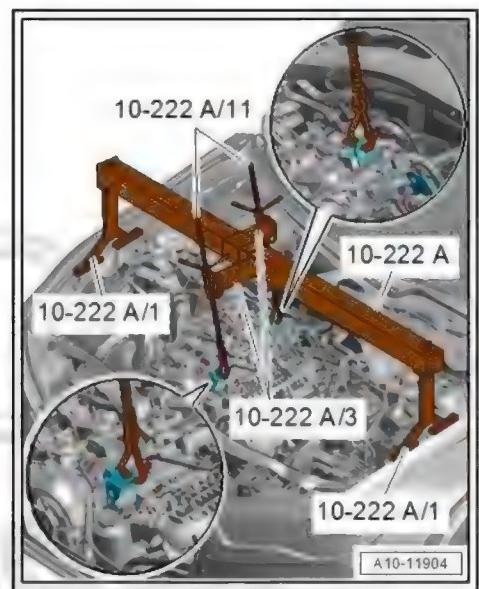


- Set up support bracket - 10-222A- at top of longitudinal members for wheel housing on both sides, as illustrated.
- Attach spindles -10-222A/11- to engine lifting eyes.
- Partly take up weight of engine with spindles.

Assembling

Assembly is carried out in reverse sequence; note the following:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



2.3 Removing and installing engine mountings



Note

- ◆ Also renew corresponding retaining plates.
- ◆ The following chapter describes the procedure for the engine mounting (left-side).

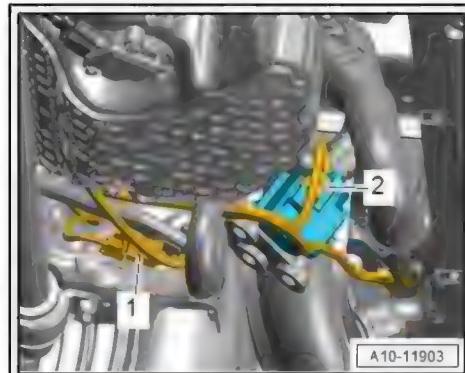
Removing

- Support engine in installation position [⇒ page 31](#).
- Remove corresponding front wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove relevant front wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Detach corresponding electrical connector -1- for left electro-hydraulic engine mounting solenoid valve - N144- / right electrohydraulic engine mounting solenoid valve - N145- (depending on gearbox) from bracket and unplug connector.



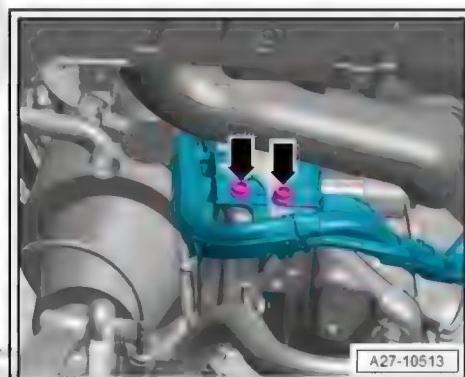
Note

Disregard -item 2-.



Engine mounting (right-side):

- Remove bolts -arrows- from bracket for B+ wire and earth wire at longitudinal member (right-side).
- Move electrical wires slightly to one side.



Protected by copyright © AUDI AG. All rights reserved.
Reproduction in whole or in part, even with respect to small extracts, is prohibited without the prior written consent of AUDI AG.

Both sides (continued):

- Remove bolts -1- and -arrows- for engine mounting (left-side).
- Move retaining plate for engine mounting clear to one side.
- Detach engine mounting.



Note

Disregard -item 2-

Installing

Installation is carried out in the reverse order; note the following:

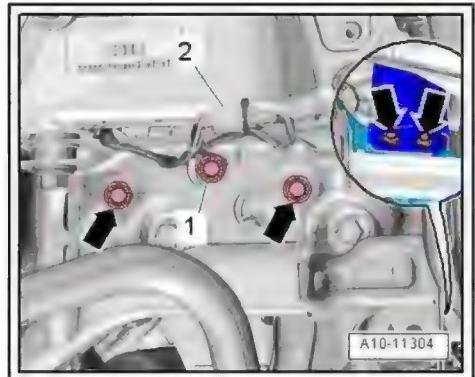


Note

After removing, renew bolts tightened with specified tightening angle.

Tightening torques

- ◆ [⇒ "2.1 Exploded view - assembly mountings", page 27](#)
- ◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ;
Wheel housing liners; Exploded view - wheel housing liner
(front)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation;
Exploded view - noise insulation
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres



Photocopies of original drawings by Audi AG are only permitted for private purposes or internal company use. They are not permitted to be distributed outside the company by Audi AG. Any communication of photocopies to third parties is expressly prohibited. The same applies to the use of electronic communication systems.

2.4 Removing and installing gearbox mounting

⇒ “2.4.1 Removing and installing gearbox support with gearbox mounting - manual gearbox”, page 34

⇒ “2.4.2 Removing and installing gearbox mounting - manual gearbox”, page 34

⇒ “2.4.3 Removing and installing gearbox support with gearbox mounting - dual clutch gearbox 0CK”, page 35

⇒ “2.4.4 Removing and installing gearbox mounting - dual clutch gearbox 0CK”, page 35

⇒ “2.4.5 Removing and installing gearbox support with gearbox mounting - dual clutch gearbox 0B5 / automatic gearbox 0BK”, page 36

⇒ “2.4.6 Removing and installing gearbox mounting - dual clutch gearbox 0B5 / automatic gearbox 0BK”, page 36

2.4.1 Removing and installing gearbox support with gearbox mounting - manual gearbox

Removing

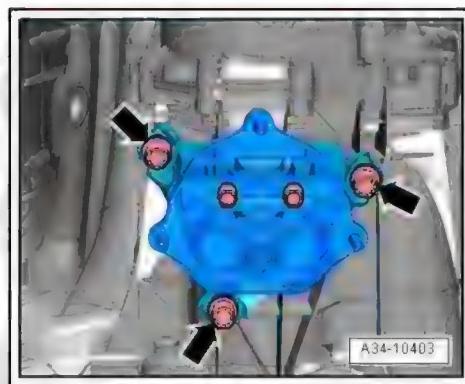
- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings .
- Remove bolts -arrows- and detach gearbox support and gearbox mounting from gearbox.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



2.4.2 Removing and installing gearbox mounting - manual gearbox

Removing

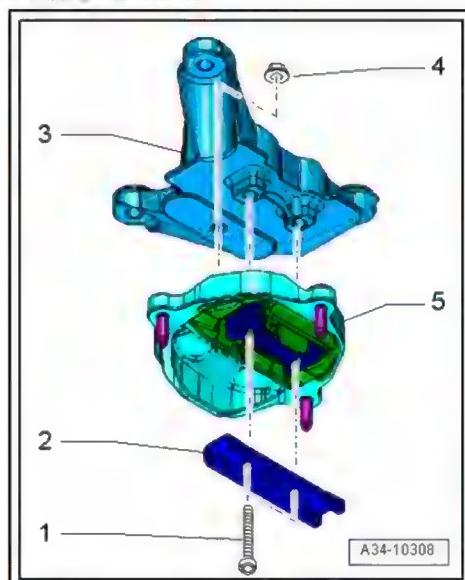
- Remove gearbox support with gearbox mounting ⇒ [page 34](#) .
- Unscrew bolts -1- and detach stop (bottom) -2- for gearbox mounting.
- Remove nut -4- and detach gearbox mounting -5- from gearbox support -3-.

Installing

- Position gearbox support -3- on gearbox mounting -5- and hand-tighten nut -4-.
- Secure stop (bottom) -2- with bolts -1-.
- Tighten nut -4-.
- Install gearbox support with gearbox mounting ⇒ [page 35](#) .

Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



2.4.3 Removing and installing gearbox support with gearbox mounting - dual clutch gearbox 0CK

Removing

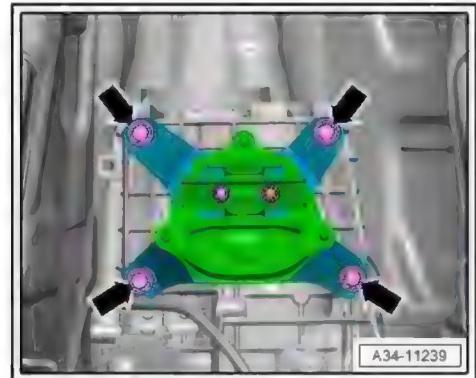
- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings .
- Remove bolts -arrows- and detach gearbox support and gearbox mounting from gearbox.

Installing

Installation is carried out in reverse sequence.

Tightening torques

⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



2.4.4 Removing and installing gearbox mounting - dual clutch gearbox 0CK

Removing

- Remove gearbox support with gearbox mounting [⇒ page 35](#) .
- Unscrew bolts -1- and detach stop -2- for gearbox mounting.
- Remove nut -5- and detach gearbox mounting -3- from gearbox support -4-.

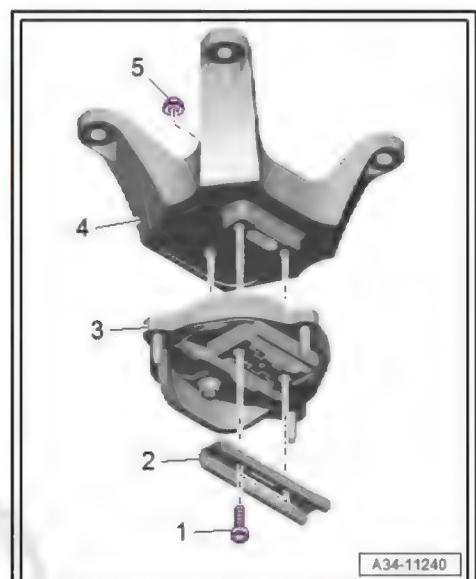
Installing

Installation is carried out in the reverse order; note the following:

- Position gearbox support -4- on gearbox mounting -3-.
- Hand-tighten nut -5-.
- Tighten bolts -1- for stop -2-.
- Tighten nut -5-.
- Install gearbox support with gearbox mounting [⇒ page 35](#) .

Tightening torques

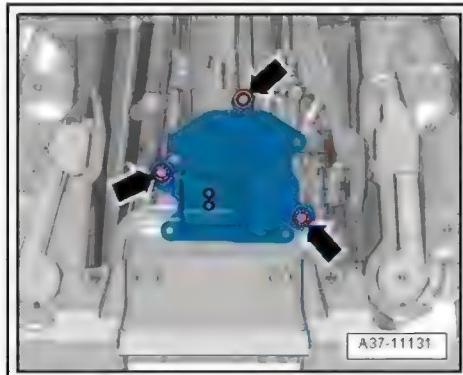
◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



2.4.5 Removing and installing gearbox support with gearbox mounting - dual clutch gearbox 0B5 / automatic gearbox 0BK

Removing

- Remove tunnel cross member ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings .
- Remove bolts -arrows- and detach gearbox support and gearbox mounting from gearbox.



Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings

Protected by copyright. Copying for private or commercial purposes, in whole or in part, is not permitted.
Copyright © Audi AG. All rights reserved. This document may not be copied, stored electronically or otherwise without the prior written consent of Audi AG.

2.4.6 Removing and installing gearbox mounting - dual clutch gearbox 0B5 / automatic gearbox 0BK

Removing

- Remove gearbox support with gearbox mounting [⇒ page 36](#) .
- Unscrew bolt -1- and detach stop -2- for gearbox mounting.
- Remove nut -4- and bolt -5- and detach gearbox mounting -6- from gearbox support -3-.

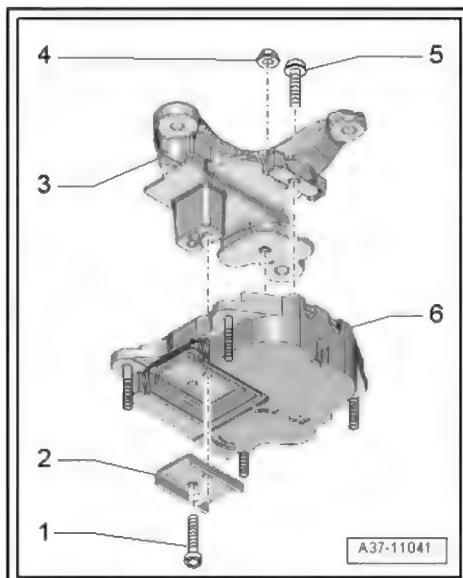
Installing

Installation is carried out in the reverse order; note the following:

- Position gearbox support -3- on gearbox mounting -6-.
- Hand-tighten nut -4- and bolt -5-.
- Tighten bolt -1- for stop -2-.
- Tighten nut -4- and bolt -5-.
- Install gearbox support with gearbox mounting [⇒ page 36](#) .

Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings / ⇒ Gearbox; Rep. gr. 37 ; Assembly mountings; Exploded view - assembly mountings



3 Engine cover panel

All procedures can be found in => Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel .



This technical document is intended for private or commercial purposes. In particular, it is not
intended for use by third parties. Audi AG and its suppliers disclaim all liability of any
kind resulting from the use of the information contained in this document. © prepared by AUDI AG



13 – Crankshaft group

1 Cylinder block (pulley end)

⇒ “1.1 Exploded view - cylinder block (pulley end)”, page 38

⇒ “1.2 Removing and installing poly V-belt”, page 38

⇒ “1.3 Removing and installing tensioner for poly V-belt”,
page 38

⇒ “1.4 Removing and installing vibration damper”, page 38

⇒ “1.5 Removing and installing bracket for ancillaries”,
page 38

1.1 Exploded view - cylinder block (pulley end)

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - cylinder block (pulley end) .

1.2 Removing and installing poly V-belt

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

1.3 Removing and installing tensioner for poly V-belt

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt tensioner .

1.4 Removing and installing vibration damper

Removing

- Remove radiator fan control unit ⇒ [page 98](#) .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); [Removing and installing vibration damper](#).

Installing

Additional work:

- Install radiator fan control unit - J293- ⇒ [page 98](#) .

1.5 Removing and installing bracket for ancillaries

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; [Removing and installing engine cover panel](#) .

- Unplug electrical connector -1- for charge pressure sender - G31- and move clear.
- Release hose clips -arrows- and detach air hose.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing bracket for ancillaries .

Installing

Additional work:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system



Protected by copyright. Copying or reproduction in whole or in part from this document is prohibited without written permission issued by Audi AG. All Audi open source components used in this document are subject to the terms and conditions of their respective open source licenses. This document is the intellectual property of Audi AG.



2 Cylinder block (gearbox end)

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13; Cylinder block (gearbox end) .



Protected by copyright. Copying or unauthorized commercial use of part or all of the content is prohibited.
© 2017 Audi AG. All rights reserved. Audi is a registered trademark of Volkswagen Group of America, Inc.

3 Crankshaft

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Crankshaft .

Part 1, the first 100 days of the new government, will be a critical test of its political credibility and popularity.



4 Balance shaft

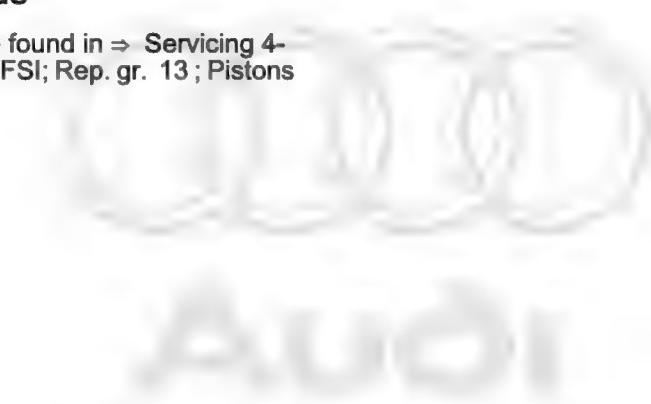
All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Balance shaft .



Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Balance shaft .
Audi A6 2011 ➤ , Audi A6 China 2012 ➤ , Audi A7 Sportback 2011 ➤
4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve TFSI - generation III) - Edition 08.2017

5 Pistons and conrods

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Pistons and conrods .



Printed by expert Audi technicians from original parts in white ink
from the Audi Service Center, Audi AG, Ingolstadt, Germany. © Copyright 2017 AUDI AG.



15 – Cylinder head, valve gear

1 Timing chain cover

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover .

Protective equipment, consumables, tools and special parts which are not
consumed during assembly and dismantling are not included in the quality
and delivery. For more information, see Quality Audit Audi AG.

2 Chain drive

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive .



Protected by copyright. Copying or private circulation of material published in part or in full without prior permission by the copyright holder, Audi AG, Audi AG, Ingolstadt, Germany, is prohibited.
With respect to the contents of this document, the document copyright lies with Audi AG.

3 Cylinder head

- ⇒ “3.1 Exploded view - cylinder head”, page 46
- ⇒ “3.2 Removing and installing cylinder head”, page 46
- ⇒ “3.3 Checking compression”, page 49

3.1 Exploded view - cylinder head

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Exploded view - cylinder head .

3.2 Removing and installing cylinder head

Removing

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not
permitted without the express written permission of AUDI AG.
– Remove camshafts ⇒ page 50

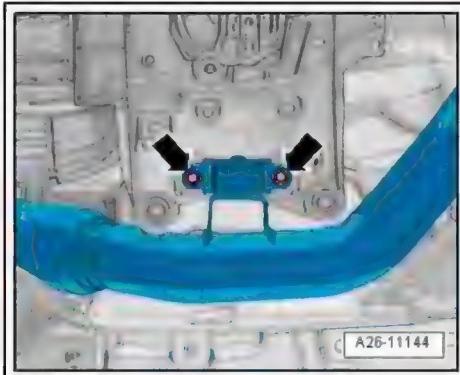


Caution

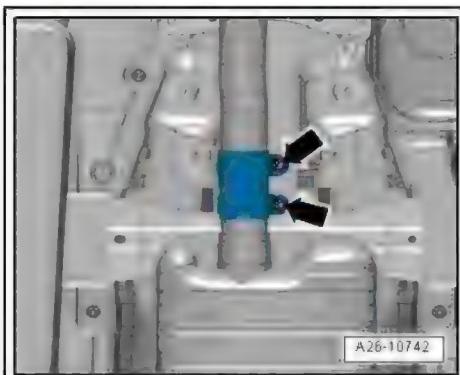
Risk of damage to valves and piston crowns.

- ◆ *Do not turn the crankshaft after the camshafts have been removed.*

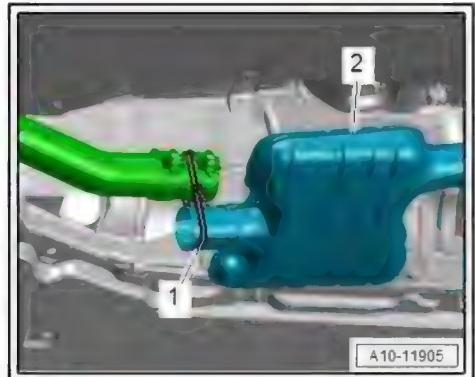
- Remove throttle valve module - J338- ⇒ page 120 .
- Unscrew bolts -arrows- for front silencer.



- Loosen bolted connections -arrows- and push clamp towards rear.



- Lower front silencer -2- slightly and secure it with a cable tie -1-, as shown in illustration.
- Drain coolant [⇒ page 62](#).



- Remove bolt -2-.



Note

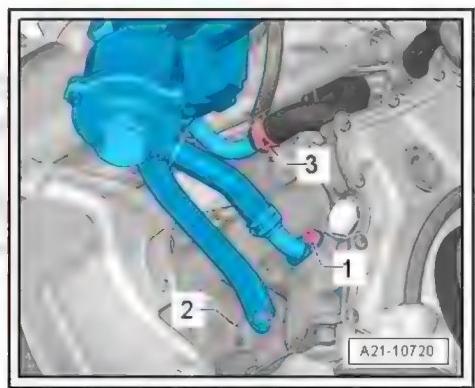
Place a cloth underneath to catch escaping engine oil.

- Unscrew bolt -1- and detach oil return connection.

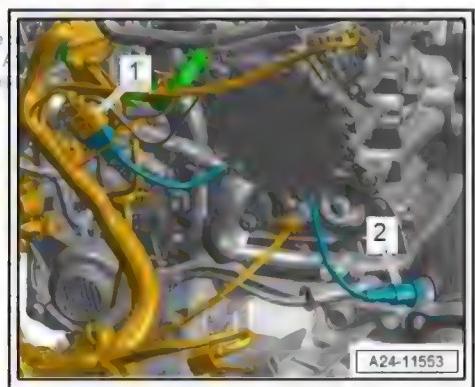


Note

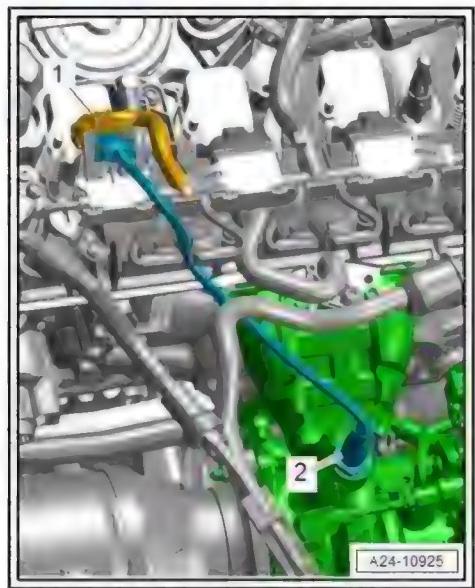
Disregard -item 3-.



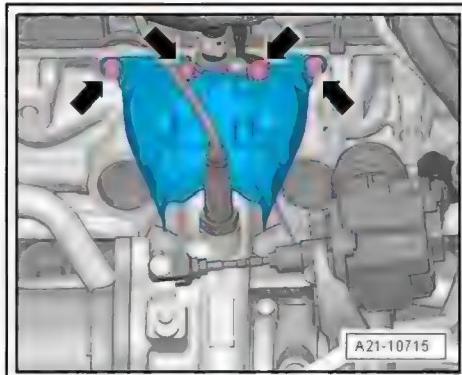
- Unplug electrical connector -1- for Lambda probe after catalytic converter - G130- -item 2- and move wiring clear.



- Unplug electrical connector -1- for Lambda probe - G39- -item 2- and move wiring clear.



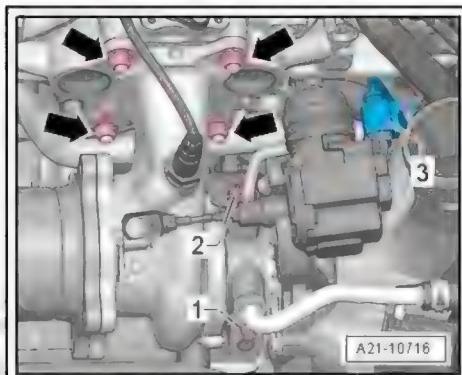
- Remove heat shield -arrows-.



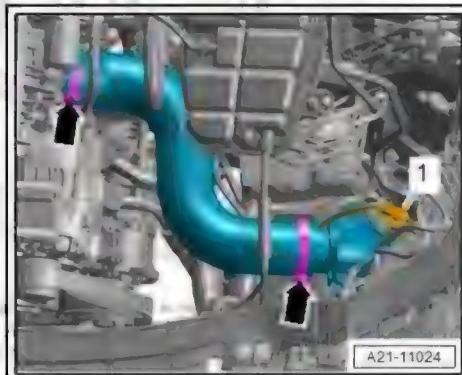
- Remove bolt -2- and detach oil supply line.
- Remove nuts -arrows- and pull turbocharger off studs.



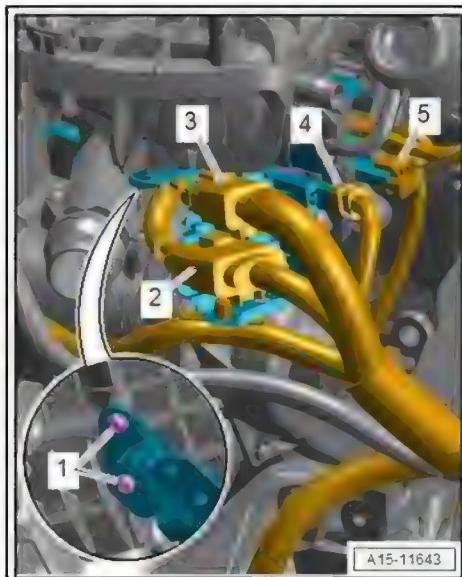
Disregard items -1 and 3-.



- Unplug electrical connector -1- for charge pressure sender - G31- and move clear.
- Release hose clips -arrows- and detach air hose.



- Detach electrical connectors -2 and 3- from bracket and unplug.
- Unplug electrical connectors -4, 5-.
- Remove bolts -1- securing bracket.

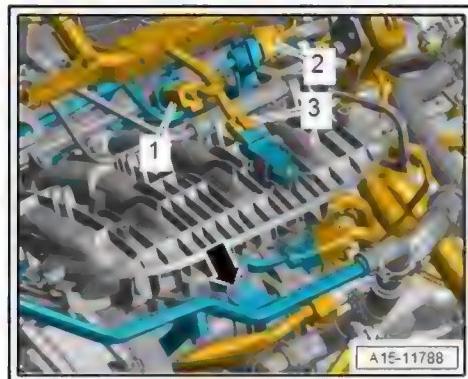


- Unplug electrical connectors -1, 2, 3-.
- Remove bolt -arrow- for coolant pipe (left-side).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Removing and installing cylinder head .

Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ [“1.1 Exploded view - silencers”, page 128](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Emission control system; Exploded view - emission control system



3.3 Checking compression

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Checking compression .



Protected by copyright. Prior authorisation of the publisher is required for any reproduction, in part or in full, of this document.
© Copyright by Audi AG, Ingolstadt, Germany
With respect to the content of individual documents, see warranty Audi AG.

4 Valve gear

- ⇒ [“4.1 Exploded view - valve gear”, page 50](#)
- ⇒ [“4.2 Removing and installing camshaft”, page 50](#)
- ⇒ [“4.3 Installing ball for slider”, page 52](#)
- ⇒ [“4.4 Removing and installing actuators for camshaft adjustment”, page 52](#)
- ⇒ [“4.5 Removing and installing camshaft control valve 1 N205”, page 52](#)
- ⇒ [“4.6 Removing and installing valve stem oil seals”, page 52](#)

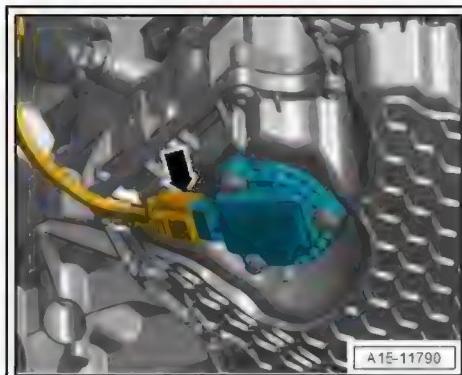
4.1 Exploded view - valve gear

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear .

4.2 Removing and installing camshaft

Removing

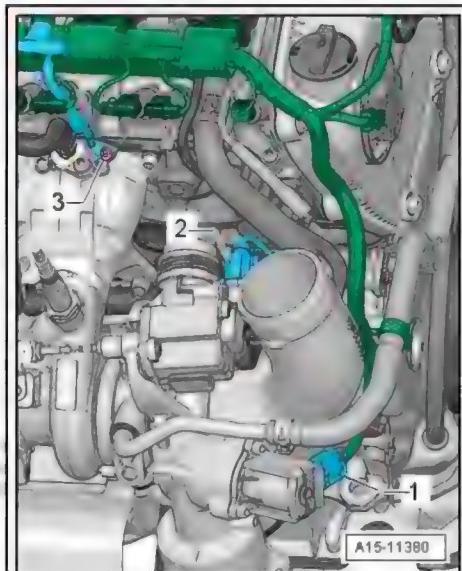
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Unplug electrical connector -arrow- for oil level and oil temperature sender - G266- .
- Remove air cleaner housing ⇒ [page 114](#) .
- Remove timing chain cover (top) ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Removing and installing timing chain cover .



- Unplug electrical connector -1- from charge pressure positioner - V465-
- Unplug electrical connector -2- from turbocharger air recirculation valve - N249- .

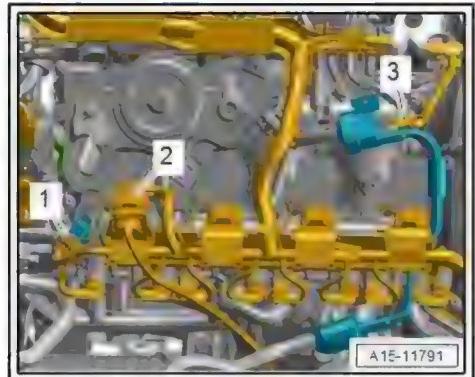


Disregard -item 3-.



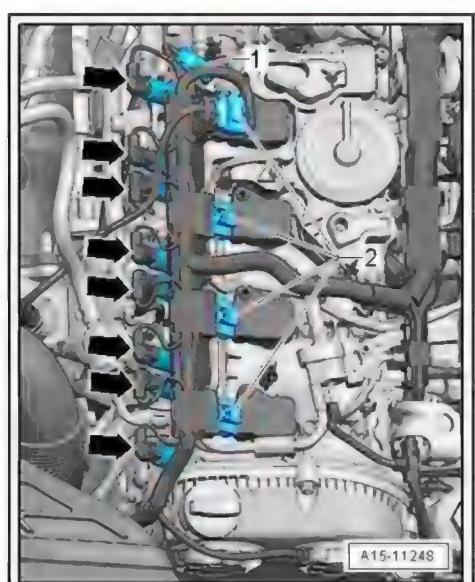
Protected by copyright. Copying prohibited. © Audi AG 2011. In particular in parts of work
permitted under the UrhG (Art. 17, para. 1, Abs. 1, Sec. 1). Any unauthorized reproduction or communication
with respect to the contents of this document is illegal.

- Unplug electrical connectors and move wiring clear:
- 1 - For Hall sender 3 - G300-
- 2 - For Lambda probe - G39- (take out of bracket)
- 3 - For activated charcoal filter solenoid valve 1 - N80-

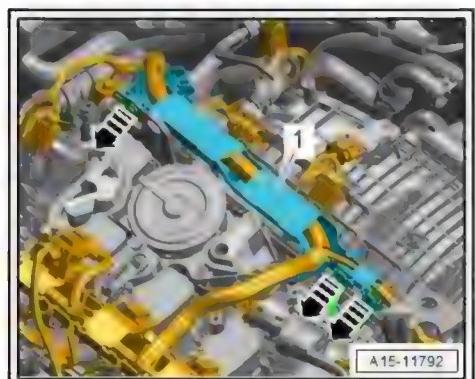


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not grant the right of use for commercial purposes.

- **Unplug electrical connectors -arrows- at actuators for cam-shaft adjustment.**
- Remove ignition coils with output stages ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .



- Move electrical wiring clear.
- Release retainers -arrows-, detach wiring duct -1- with electrical wiring harness and move to one side.

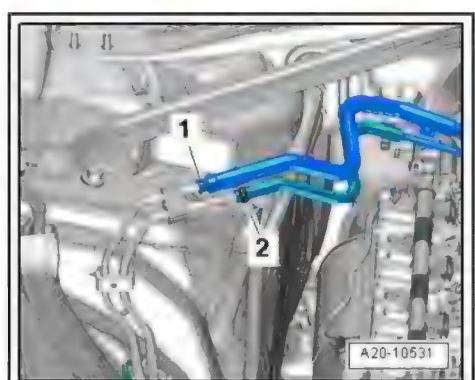


- Disconnect hose -2- for activated charcoal filter system.



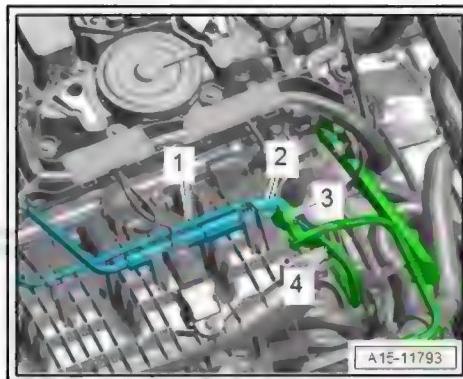
Note

Disregard -item 1-.



- Lift retaining clip -3-, detach coolant hose -2-, move it clear at cylinder head and push it towards right side.
- Detach vacuum hose -4-, disconnect vacuum line -1- for intake manifold flap valve - N316- and move clear at cylinder head.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft .



4.3 **Installing ball for slider**

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Installing ball for slider .

4.4 **Removing and installing actuators for camshaft adjustment**

Removing

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing actuators for camshaft adjustment .

4.5 **Removing and installing camshaft control valve 1 - N205-**

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft control valve 1 - N205- .

4.6 **Removing and installing valve stem oil seals**

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing valve stem oil seals .

5 Inlet and exhaust valves

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Inlet and exhaust valves .



Printed by AUDI AG, Ingolstadt, Germany, 2017. © AUDI AG. All rights reserved. AUDI AG
and its logo are registered trademarks of AUDI AG.

17 – Lubrication

1 Sump/oil pump

⇒ “1.1 Exploded view - sump/oil pump”, page 54

⇒ “1.2 Engine oil”, page 54

⇒ “1.3 Removing and installing sump (bottom section)”,
page 54

⇒ “1.4 Removing and installing oil pump”, page 55

⇒ “1.5 Removing and installing sump (top section)”, page 55

⇒ “1.6 Removing and installing oil level and oil temperature send-
er G266 ”, page 55

1.1 Exploded view - sump/oil pump

All components are described in ⇒ Servicing 4-cylinder engine,
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Ex-
ploded view - sump/oil pump .

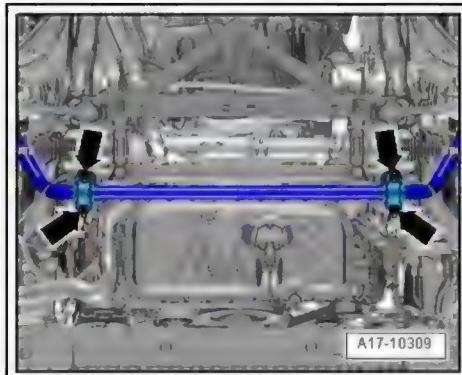
1.2 Engine oil

Refer to ⇒ Maintenance ; Booklet 411 or ⇒ Maintenance ; Booklet
412 for instructions on draining and filling up engine oil, checking
oil level, removing and installing oil filter element.

1.3 Removing and installing sump (bottom section)

Removing

- Support engine in installation position ⇒ [page 31](#) .
- Remove front wheels ⇒ Running gear, axles, steering; Rep.
gr. 44 ; Wheels, tyres .
- Remove wheel spoilers (front) on both sides ⇒ General body
repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded
view - wheel housing liner (front) .
- Remove front noise insulation ⇒ General body repairs, exte-
rior; Rep. gr. 66 ; Noise insulation; Exploded view - noise
insulation .
- Remove nuts -arrows- and lower anti-roll bar.

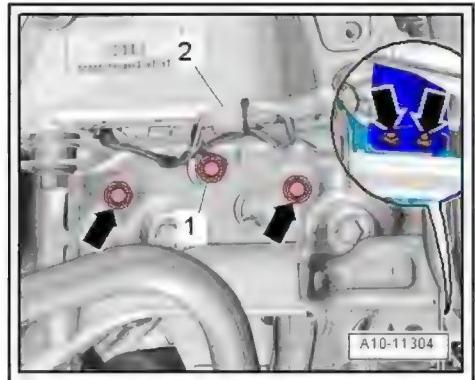


- Remove bolt -1- from engine mountings (left and right) and raise engine slightly via spindle.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump (bottom section) .

Tightening torques

- ◆ Anti-roll bar ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe
- ◆ ⇒ [“2.1 Exploded view - assembly mountings”, page 27](#)
- ◆ Wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)



1.4 Removing and installing oil pump

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing oil pump .

1.5 Removing and installing sump (top section)

All procedures are described in ⇒ [Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump \(top section\)](#) .

1.6 Removing and installing oil level and oil temperature sender - G266-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing oil level and oil temperature sender - G266- .



2 Engine oil cooler

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Engine oil cooler .



Reprinted with permission of FPT Industrial, a member of the OMV Group and a world leader in power generation, compression and industrial applications. All rights reserved.
Audi is a registered trademark of Volkswagen AG.

3 Crankcase breather

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Crankcase breather .

Photographs, technical drawings, diagrams and other content in this manual are the property of AUDI AG. All rights reserved. AUDI AG is a registered trademark of AUDI AG.



4 Oil filter/oil pressure switches

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches .



19 – Cooling

1 Cooling system/coolant

⇒ [“1.1 Connection diagram - coolant hoses”, page 59](#)

⇒ [“1.2 Checking cooling system for leaks”, page 62](#)

⇒ [“1.3 Draining and filling cooling system”, page 62](#)

1.1 Connection diagram - coolant hoses

⇒ [“1.1.1 Connection diagram - coolant hoses, vehicles without auxiliary heater”, page 59](#)

⇒ [“1.1.2 Connection diagram - coolant hoses, vehicles with auxiliary heater”, page 61](#)

1.1.1 Connection diagram - coolant hoses, vehicles without auxiliary heater



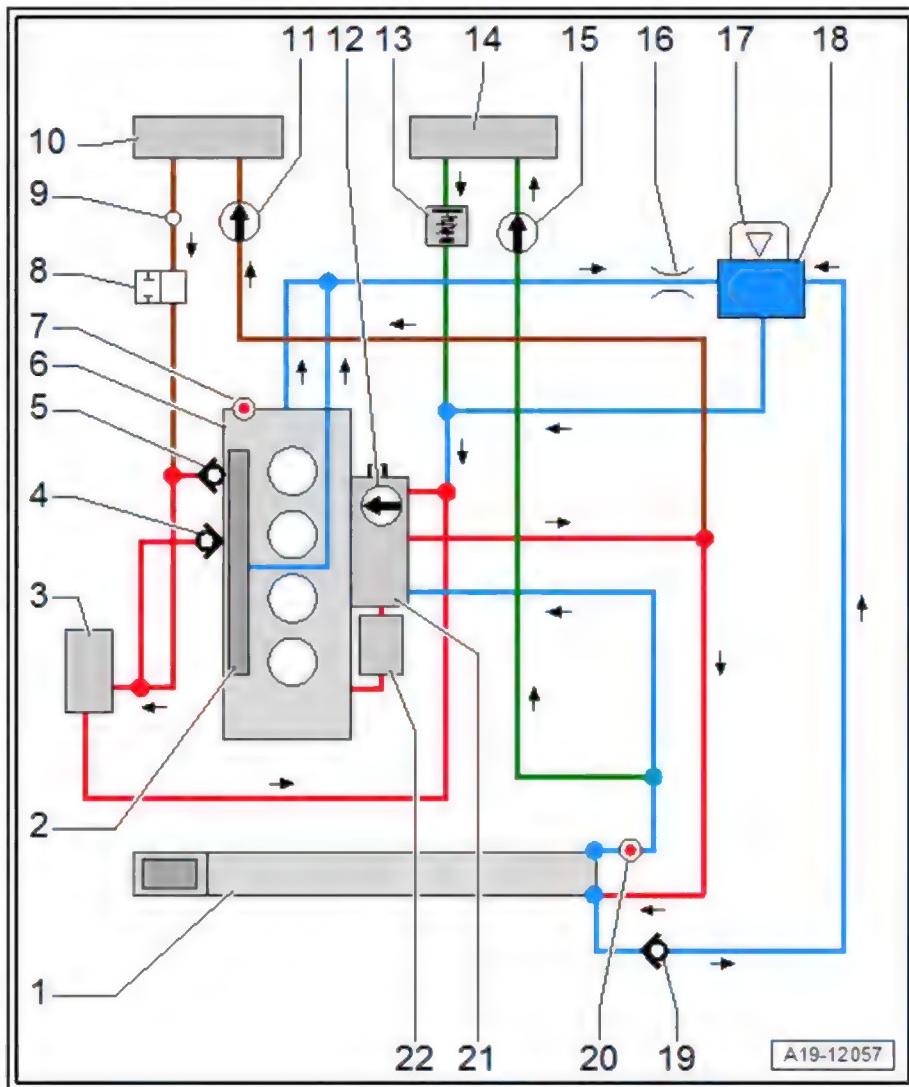
Note

- ◆ *Blue = Large coolant circuit.*
- ◆ *Red = Small coolant circuit.*
- ◆ *Brown = Heating circuit.*
- ◆ *Green = Coolant circuit for ATF.*



Reproduced by permission of Landow Publishing Group, Inc. from AUDI A6 (2011) Service Manual. © 2011 AUDI AG. All rights reserved. Reproduction in whole or in part in any form is prohibited without the express written permission of Landow Publishing Group, Inc. AUDI and the four rings logo are registered trademarks of AUDI AG.

- 1 - Radiator
- 2 - Exhaust manifold
- 3 - Turbocharger
- 4 - Non-return valve
- 5 - Non-return valve
- 6 - Cylinder head/cylinder block
- 7 - Coolant temperature sender - G62-
- 8 - Coolant shut-off valve
 - Activated by Climatronic coolant shut-off valve - N422- (negative pressure)
- 9 - Bleeder hole
- 10 - Heat exchanger for heater
 - Removing and installing
→ Heating, air conditioning; Rep. gr. 87 ; Front air conditioning unit; Removing and installing heat exchanger
- 11 - Coolant circulation pump - V50-
- 12 - Coolant pump
- 13 - Thermostat
 - For coolant circuit for ATF
 - For vehicles with dual clutch gearbox/automatic gearbox
- 14 - ATF cooler
 - For vehicles with dual clutch gearbox/automatic gearbox
- 15 - Continued coolant circulation pump - V51-
 - For vehicles with dual clutch gearbox/automatic gearbox
- 16 - Restrictor
- 17 - Filler cap
 - Checking pressure relief valve ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Checking cooling system for leaks
- 18 - Coolant expansion tank
- 19 - Non-return valve
- 20 - Radiator outlet coolant temperature sender - G83-
- 21 - Actuator for engine temperature regulation - N493-
- 22 - Engine oil cooler



Printed by Ingolstadt. Copying for private or commercial purposes, in part or in whole, is not permitted without authorisation by Audi AG. All rights reserved. Audi AG reserves the right to change any details with respect to the correctness of information in this document. © Copyright by Audi AG.

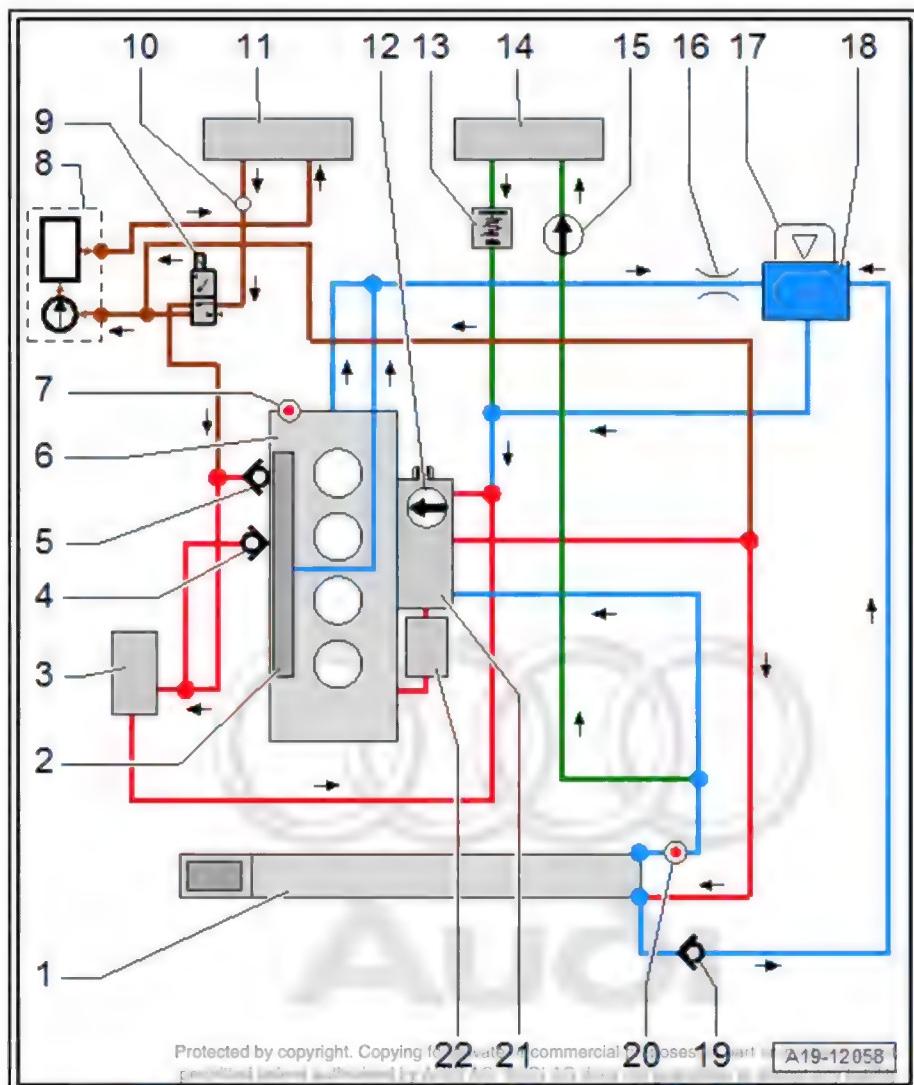
1.1.2 Connection diagram - coolant hoses, vehicles with auxiliary heater



Note

- ◆ *Blue = Large coolant circuit.*
 - ◆ *Red = Small coolant circuit.*
 - ◆ *Brown = Heating circuit.*
 - ◆ *Green = Coolant circuit for ATF.*

- 1 - Radiator
 - 2 - Exhaust manifold
 - 3 - Turbocharger
 - 4 - Non-return valve
 - 5 - Non-return valve
 - 6 - Cylinder head/cylinder block
 - 7 - Coolant temperature sender - G62-
 - 8 - Auxiliary heater
 - 9 - Heater coolant shut-off valve - N279-
 - 10 - Bleeder hole
 - 11 - Heat exchanger for heater
 - Removing and installing
⇒ Heating, air conditioning; Rep. gr. 87 ;
Front air conditioning unit; Removing and installing heat exchanger
 - 12 - Coolant pump
 - 13 - Thermostat
 - For coolant circuit for ATF
 - For vehicles with dual clutch gearbox/automatic gearbox
 - 14 - ATF cooler
 - For vehicles with dual clutch gearbox/automatic gearbox
 - 15 - Continued coolant circulation
 - For vehicles with dual cl
 - 16 - Restrictor
 - 17 - Filler cap
 - Checking pressure relief
Cooling system/coolant:





- 18 - Coolant expansion tank
- 19 - Non-return valve
- 20 - Radiator outlet coolant temperature sender - G83-
- 21 - Actuator for engine temperature regulation - N493-
- 22 - Engine oil cooler

1.2 Checking cooling system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine,
1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant;
Checking cooling system for leaks .

1.3 Draining and filling cooling system

Special tools and workshop equipment required

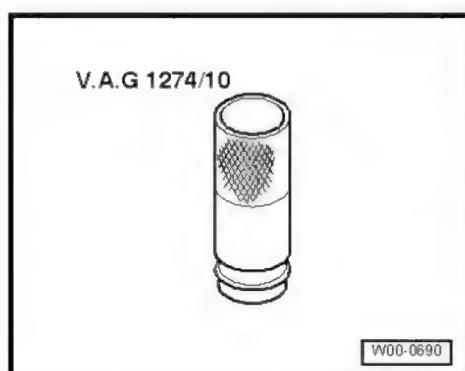
- ◆ Vehicle diagnostic tester
- ◆ Adapter for cooling system tester - V.A.G 1274/8-

Protected by copyright. Duplication or communication, in part or in whole, is not permitted without the express written consent of AUDI AG. All rights reserved. This document is subject to change.
With respect to the correctness of information in this document, refer to the Audi AG website.



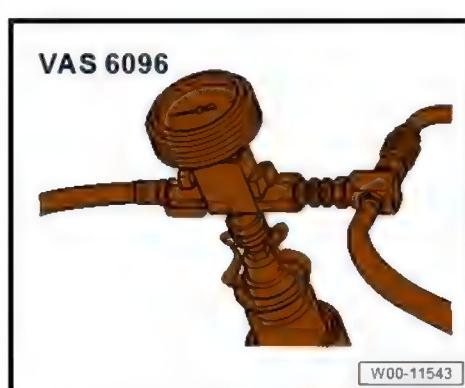
V.A.G 1274/8

W00-11182



V.A.G 1274/10

W00-0690



VAS 6096

W00-11543

- ◆ Pipe for cooling system tester - V.A.G 1274/10-

- ◆ Cooling system charge unit - VAS 6096-

- ◆ Coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-



- ◆ Refractometer - T10007A-



- ◆ Safety goggles
- ◆ Protective gloves

Draining

Protected by copyright © by AUDI AG. All rights reserved. Any unauthorized use is prohibited.
 With respect to the correctness of information in this document, please contact AUDI AG.



WARNING

*The cooling system is under pressure when the engine is hot.
 Risk of scalding due to hot steam and hot coolant.*

Danger of scalding skin and other parts of the body.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- Open filler cap -arrow- on coolant expansion tank.
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation.

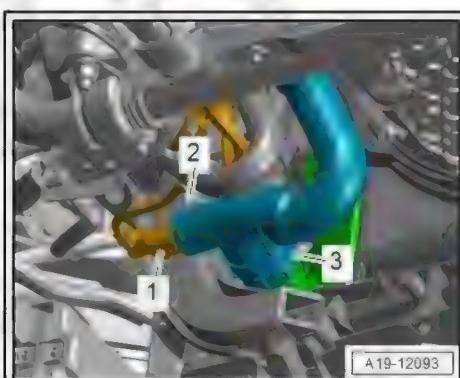


- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Unplug electrical connector -1- and move wiring clear.
- Lift retaining clip -3-, disconnect coolant hose from radiator (bottom left) and drain off coolant.



Disregard -item 2-.

Protected by copyright. Copying, translating or
permitted only with written consent by AUDI AG
with respect to the correctness of the information.



Vehicles with dual clutch gearbox 0CK:

- Release hose clip -2-, disconnect coolant hose from gearbox and drain off coolant.



Disregard -item 1-.

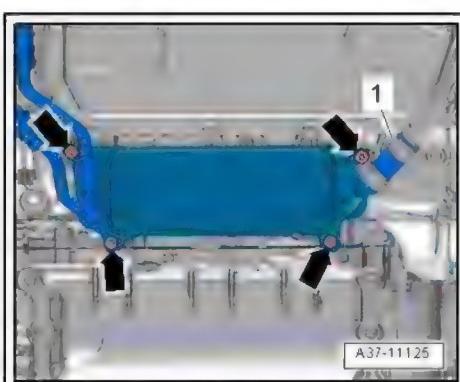


Vehicles with dual clutch gearbox 0B5:

- Release hose clip -1-, disconnect coolant hose from ATF cooler and drain off coolant.



Disregard -arrows-.



Vehicles with automatic gearbox 0BK:

- Release hose clip -3-, disconnect coolant hose from ATF cooler -1- and drain off coolant.



Note

-Arrows- and -item 2- can be disregarded.

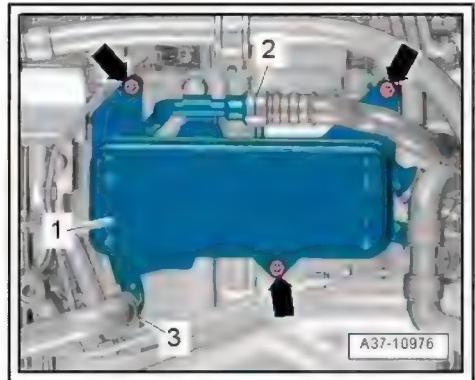
- Connect coolant hoses (version with plug-in connectors)
[⇒ page 91](#).

Coolant specifications

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

Recommended mixture ratio for coolant

- Coolant (40 %) and distilled water (60 %) for frost protection to -25 °C
- Coolant (50 %) and distilled water (50 %) for frost protection to -36 °C
- Coolant ⇒ [Electronic parts catalogue](#)



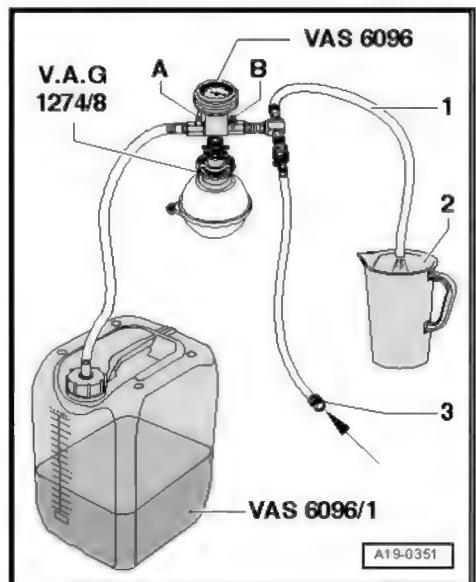
Filling cooling system

- Fill reservoir of -VAS 6096- with 10 litres of premixed coolant (according to recommended ratio; for recommended ratio see [⇒ page 65](#)).
- Fit adapter for cooling system tester - V.A.G 1274/8- onto coolant expansion tank.
- Attach cooling system charge unit - VAS 6096- to adapter - V.A.G 1274/8- .
- Run vent hose -1- into a small container -2-.

Note

The vented air draws along a small amount of coolant, which should be collected.

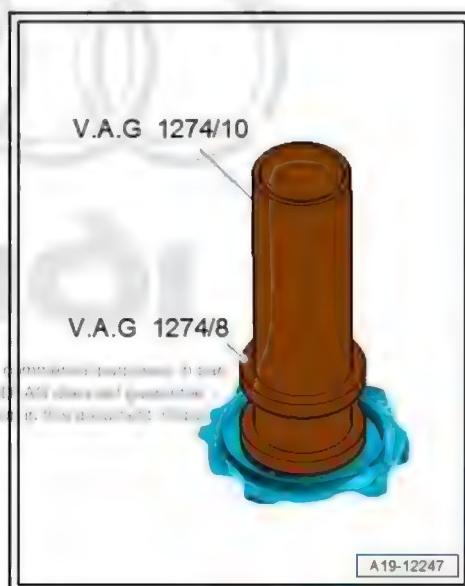
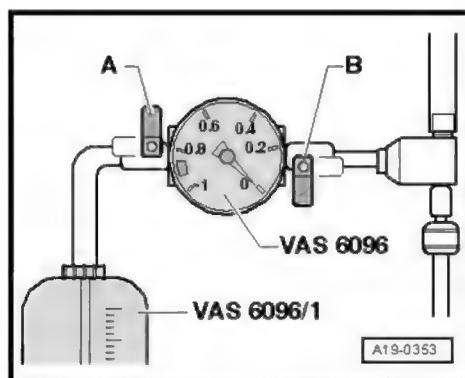
- Close both valves -A- and -B- (turn lever at right angles to direction of flow).
- Connect hose -3- to compressed air supply.
- Pressure: 7 ... 10 bar.
- Open valves in coolant circuit; select **01 – Coolant circuit bleeding routine** in **Guided Functions** ⇒ Vehicle diagnostic tester.



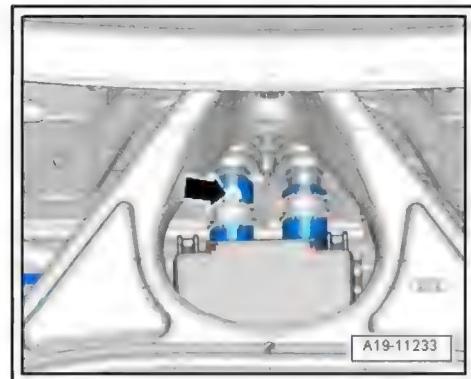
- Open valve -B- by setting lever in direction of flow.
- The suction jet pump generates a partial vacuum in the cooling system; the needle on the gauge should move into the green zone.
- Also briefly open valve -A- (turn lever in direction of flow) so that hose on reservoir of -VAS 6096- can fill with coolant.
- Close valve -A- again.
- Leave valve -B- open for another 2 minutes.
- The suction jet pump continues to generate a partial vacuum in the cooling system; the needle on the gauge should remain in the green zone.
- Close valve -B-.
- The needle on the gauge should stop in the green zone. The vacuum level in the cooling system is then sufficient for subsequent filling.
- If the needle does not reach the green zone, repeat the process.
- Check cooling system for leaks if the vacuum is not maintained.
- Detach compressed air hose.
- Open valve -A-.
- The vacuum in the cooling system causes the coolant to be drawn out of the reservoir of -VAS 6096- ; the cooling system is then filled.
- Detach cooling system charge unit - VAS 6096- from adapter -V.A.G 1274/8- on coolant expansion tank.
- Attach pipe -V.A.G 1274/10- onto adapter -V.A.G 1274/8- .
- Fill up pipe for cooling system tester - V.A.G 1274/10- with coolant. If required, add further coolant when performing bleeding procedure.

Bleeding cooling system

- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .



- Release coolant hose going to heat exchanger for heater and pull back hose until bleeder hole -arrow- in hose is no longer blocked by connection.
- Fill up with coolant until it flows out at bleeder hole in coolant hose.
- Push coolant hose back onto connection and secure with spring-type hose clip.
- Close filler cap on expansion tank.
- Start engine.
- Set temperature to "HI" in all zones.
- Set fresh air blower to lowest setting.
- Switch off air conditioner compressor (press **AC** button).
- LED in button should not light up.
- Run engine for 3 minutes at 2000 rpm.
- Allow engine to run at idling speed until both large coolant hoses at radiator become warm.
- Run engine for 2 minutes at 2000 rpm.
- On vehicles with auxiliary heater, switch heater on for approx. 30 seconds and allow engine to run at idling speed.
- Switch off ignition and allow engine to cool down.
- Install noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



Checking coolant level



WARNING

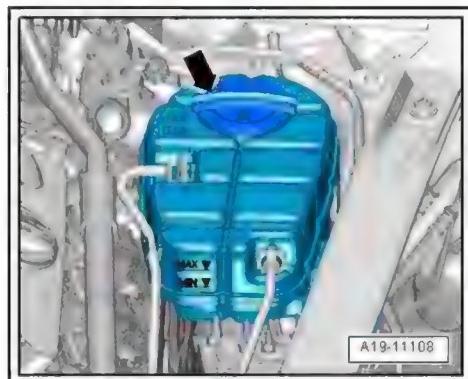
*The cooling system is under pressure when the engine is hot.
Risk of scalding due to hot steam and hot coolant.*

Danger of scalding skin and other parts of the body.

- *Put on protective gloves.*
- *Put on safety goggles.*
- *Cover filler cap on expansion tank with a cloth and open carefully to release pressure.*

Protected by copyright. Copying for private or internal purposes is permitted. Any other use, in particular commercial use, is prohibited unless authorised by AUDI AG. AUDI AG reserves the right to take legal action in case of misuse.

- The coolant level must be at the "MAX" marking when the engine is cold.
- The coolant level can be above the "MAX" marking when the engine is warm.





2 Coolant pump/thermostat assembly

- ⇒ [“2.1 Exploded view - coolant pump/thermostat”, page 68](#)
- ⇒ [“2.2 Exploded view - electric coolant pump”, page 68](#)
- ⇒ [“2.3 Exploded view - coolant temperature senders”, page 70](#)
- ⇒ [“2.4 Exploded view - coolant valve for gearbox”, page 71](#)
- ⇒ [“2.5 Removing and installing electric coolant pump”, page 71](#)
- ⇒ [“2.6 Removing and installing coolant pump”, page 74](#)
- ⇒ [“2.7 Removing and installing toothed belt for coolant pump”, page 75](#)
- ⇒ [“2.8 Removing and installing actuator for engine temperature regulation N493”, page 75](#)
- ⇒ [“2.9 Removing and installing coolant temperature sender G62”, page 75](#)
- ⇒ [“2.10 Removing and installing radiator outlet coolant temperature sender G83”, page 76](#)
- ⇒ [“2.11 Removing and installing coolant valves”, page 76](#)

2.1 Exploded view - coolant pump/thermostat

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat .

2.2 Exploded view - electric coolant pump

1 - Continued coolant circulation pump - V51-

- Removing and installing
⇒ page 73

2 - Coolant hoses

3 - Bracket

- For coolant circulation pump - V50-

4 - Bolt

- Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox or ⇒ Gearbox; Rep. gr. 37 ; Removing and installing gearbox; Tightening torques for gearbox

5 - Bolt
Prohibited by copyright. Copying for private or commercial purposes is only permitted unless authorised by AUDI AG.
With respect to the correctness of information in this document, AUDI AG can only guarantee the information at the time of its compilation.

- 2.7 Nm

6 - Coolant hose

7 - Coolant circulation pump - V50-

- Removing and installing
⇒ page 71

8 - Coolant hose

9 - Bolt

- 23 Nm

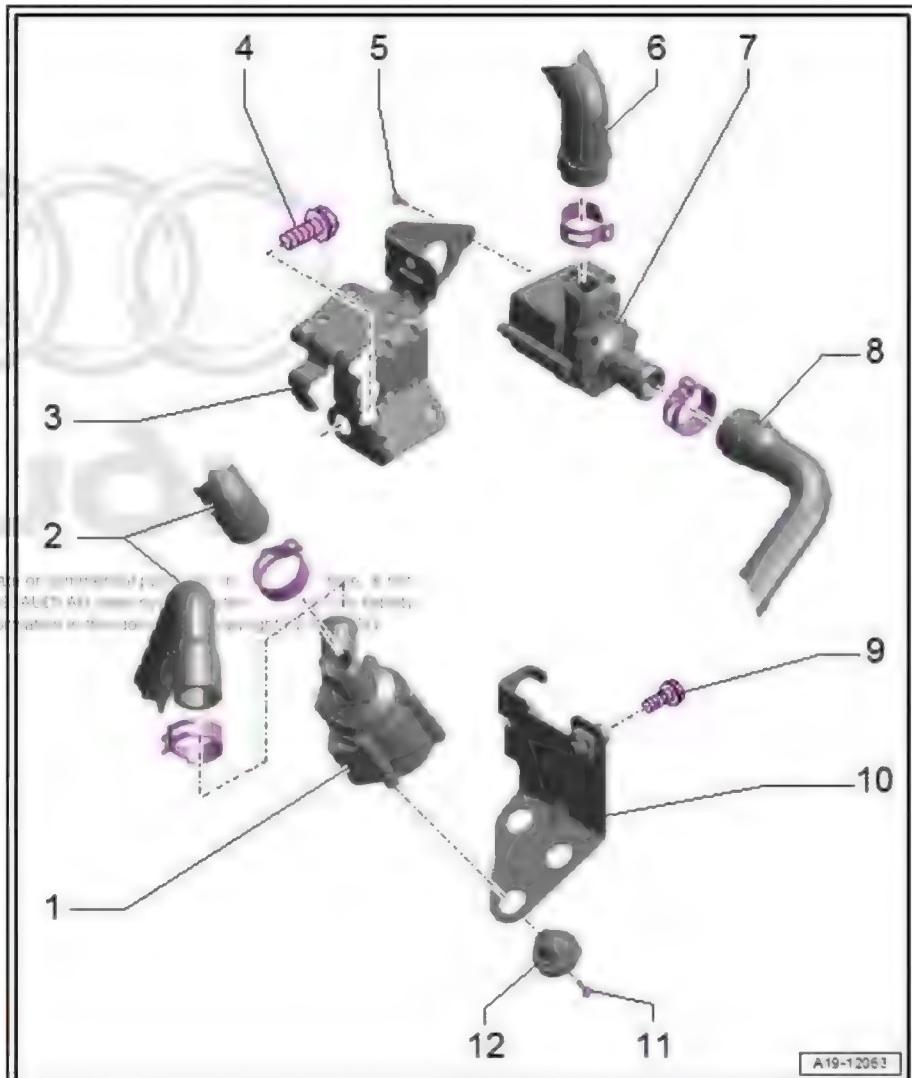
10 - Bracket

- For continued coolant circulation pump - V51-

11 - Bolt

- 2.7 Nm

12 - Rubber grommet



2.3 Exploded view - coolant temperature senders

1 - O-ring

- Renew after removing
- Lubricate with coolant

2 - Radiator outlet coolant temperature sender - G83-

- Removing and installing
[⇒ page 76](#)

3 - Retaining clip

- Check for firm attachment

4, 5 - O-rings

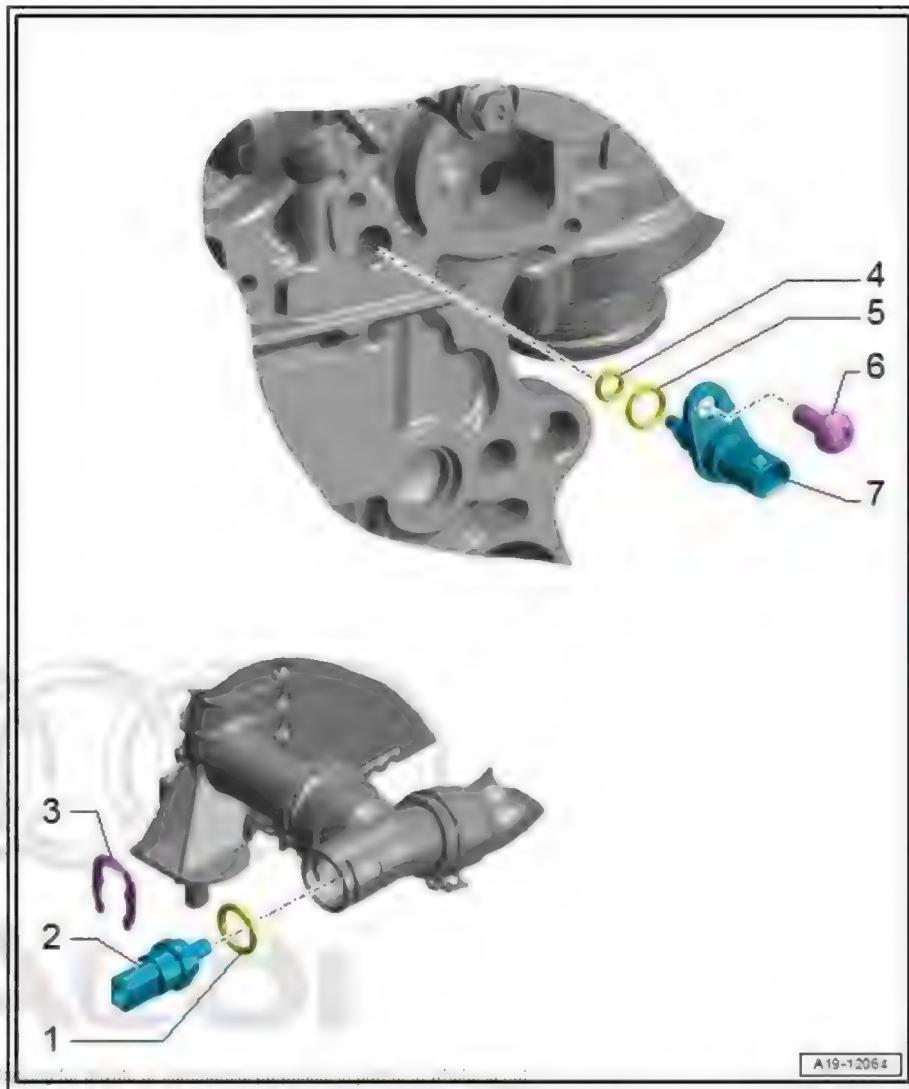
- Installation instructions
⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

6 - Bolt

- Tightening torques ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

7 - Coolant temperature sender - G62-

- On cylinder head (gearbox end)
- Removing and installing
⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant temperature sender - G62-



2.4 Exploded view - coolant valve for gearbox

1 - Coolant valve for gearbox - N488-

- Removing and installing
[⇒ page 76](#)

2 - Coolant hose

3 - Bolt

- 23 Nm

4 - Bracket

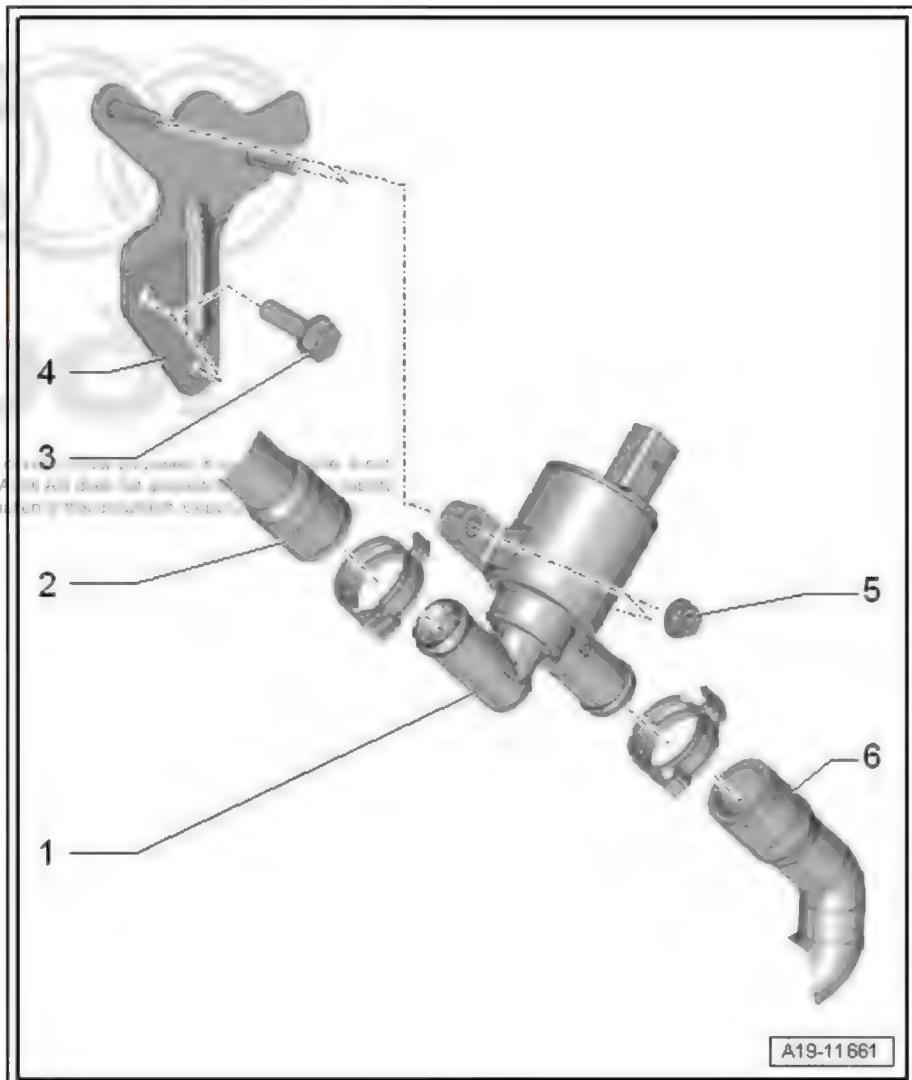
- For coolant valve for gearbox - N488-

5 - Nut

- 9 Nm

6 - Coolant hose

Protected by copyright. Copying for private personal use is authorised by AUDI AG. All other copying or reproduction is subject to prior written consent of AUDI AG.



2.5 Removing and installing electric coolant pump

[⇒ "2.5.1 Removing and installing coolant circulation pump V50 ", page 71](#)

[⇒ "2.5.2 Removing and installing continued coolant circulation pump V51 ", page 73](#)

2.5.1 Removing and installing coolant circulation pump - V50-

Special tools and workshop equipment required



- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



For technical assistance, please contact your local Audi dealer or visit www.audi.com.
For further information on Audi parts, call 1-800-AUDI-USA. For questions on service and maintenance, contact
your local Audi dealer or call 1-800-AUDI-USA. For information on financing, contact Audi Finance Corporation, AUDI AG.

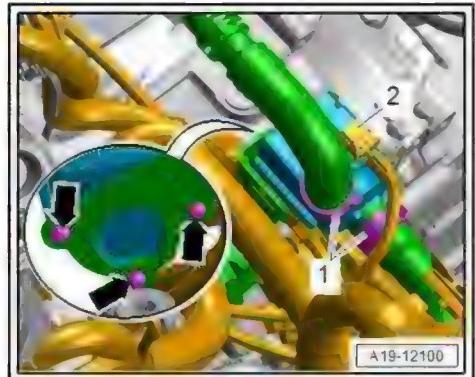
Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Unplug electrical connector -2-.



Place a cloth underneath to catch escaping coolant.

- Clamp off coolant hoses using hose clamps -3094-, release hose clips -1- and disconnect coolant hoses.
- Remove bolts -arrows- and detach coolant circulation pump - V50- .



Installing

Installation is carried out in the reverse order; note the following:



Secure all hose connections with correct type of hose clips (as original equipment) ⇒ Electronic parts catalogue .



Do not reuse coolant.

- Protected by copyright. Copying, distribution, and/or unauthorised use, in part or in full, is prohibited without the express written permission of AUDI AG. AUDI AG reserves the right to take legal action against unauthorized users.
- Fill up with coolant ⇒ [page 62](#)
 - Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ ⇒ “[2.2 Exploded view - electric coolant pump](#)”, [page 68](#)

2.5.2 Removing and installing continued coolant circulation pump - V51-

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



Removing

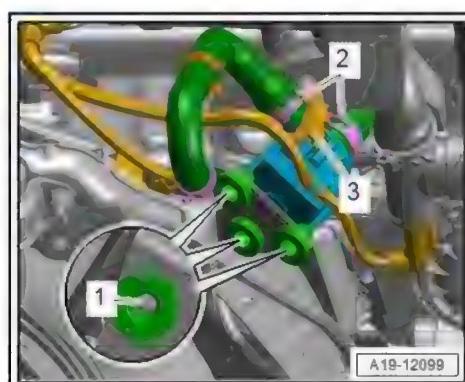
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Unplug electrical connector -3-.



Note

Place a cloth underneath to catch escaping coolant.

- Clamp off coolant hoses using hose clamps -3094- , release hose clips -2- and disconnect coolant hoses.
- Remove bolts -1- and detach continued coolant circulation pump - V51- .



Installing

Installation is carried out in the reverse order; note the following:



Note

- ◆ Secure all hose connections with correct type of hose clips (as original equipment) ⇒ Electronic parts catalogue .
- ◆ Do not reuse coolant.

- Fill up with coolant ⇒ [page 62](#) .

Protected by copyright. Copying for private reference or internal use only is permitted. Any other use, in particular the further distribution without authorisation by AUDI AG, AUDI Austria GmbH or AUDI Hungaria Kft., is prohibited.

- ◆ ⇒ ["2.2 Exploded view - electric coolant pump", page 68](#)

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

2.6 Removing and installing coolant pump

Removing

- Drain coolant ⇒ [page 62](#) .
- Remove throttle valve module - J338- ⇒ [page 120](#) .

- Lift retaining clips -1 and 2- and disconnect coolant hoses.



Note

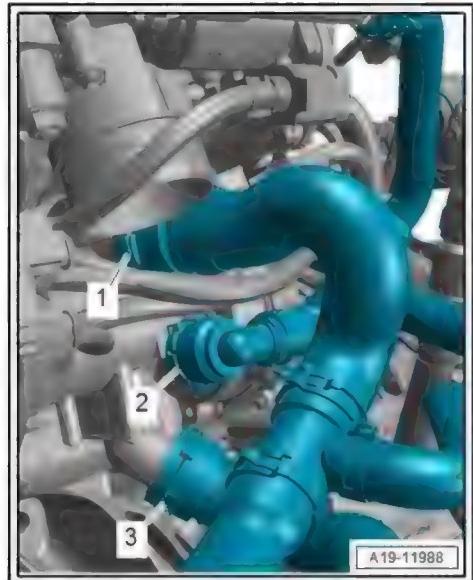
Disregard -item 3-.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant pump .

Installing

Additional work:

- Connect coolant hose with plug-in connector [⇒ page 91](#) .
- Install throttle valve module - J338- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .



A19-11988

2.7 Removing and installing toothed belt for coolant pump

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing toothed belt for coolant pump .

2.8 Removing and installing actuator for engine temperature regulation - N493-

Protected by copyright. All rights reserved. Reproduction in whole or in part is prohibited without the express written permission of AUDI AG.
With respect to the correctness of information in this document, see page 1.

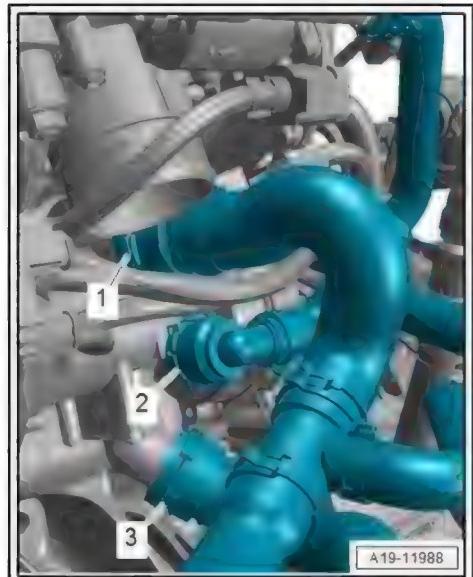
Removing

- Remove coolant pump [⇒ page 74](#) .
- Lift retaining clips and disconnect coolant hoses -1, 2 and 3-.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly ; Removing and installing actuator for engine temperature regulation - N493- .

Installing

- Connect coolant hose with plug-in connector [⇒ page 91](#) .
- Install coolant pump ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat .



A19-11988

2.9 Removing and installing coolant temperature sender - G62-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant temperature sender - G62- .

2.10 Removing and installing radiator outlet coolant temperature sender - G83-

Removing

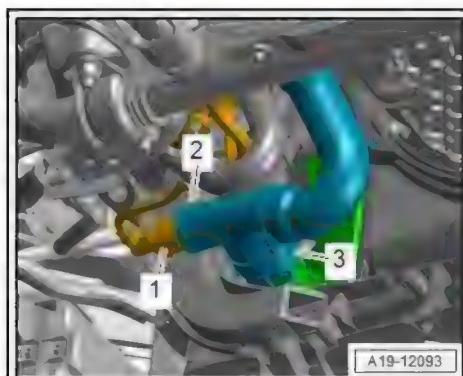
- Engine cold.
- Open filler cap -arrow- on coolant expansion tank briefly to relieve residual pressure in cooling system.
- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



- Unplug electrical connector -1- at radiator outlet coolant temperature sender - G83- .

Note

- ◆ Place a cloth underneath to catch escaping coolant.
- ◆ Insert new radiator outlet coolant temperature sender - G83- immediately into connection to avoid loss of coolant.
- Lift retaining clip -2- and pull out radiator outlet coolant temperature sender - G83- .



Installing

Installation is carried out in the reverse order; note the following:

Note

Fit new O-rings.

- Check coolant level [⇒ page 67](#) .

Tightening torques

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

2.11 Removing and installing coolant valves

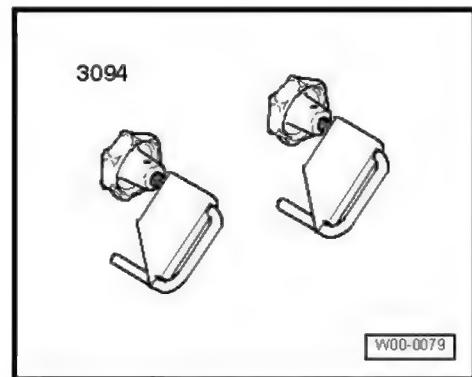
2.11.1 Removing and installing coolant valve for gearbox - N488-

Coolant valve for gearbox - N488- is fitted on some vehicle versions.

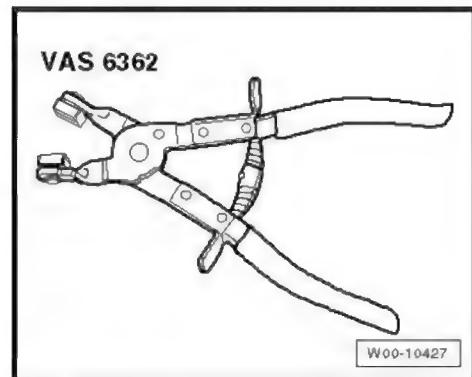
Special tools and workshop equipment required

Printed by a copyright-protected private or commercial publisher or part of it without prior permission from AUDI AG. AUDI AG reserves all rights in respect of any use of, or otherwise dealing with, the contents of this document. Copyright by AUDI AG.

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



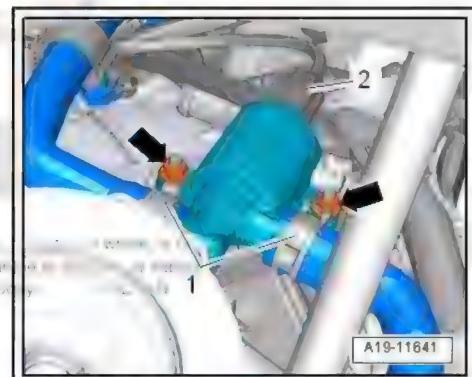
Removing

- Remove noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Unplug electrical connector -2-.
- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- , release hose clips -1- and disconnect hoses.
- Remove nuts -arrows- and detach coolant valve for gearbox - N488- .

Installing

Installation is carried out in the reverse order, note the following:

- Tightening torque
⇒ ["2.4 Exploded view - coolant valve for gearbox", page 71](#)



Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

3 Coolant pipes

- ⇒ “3.1 Exploded view - coolant pipes”, page 78
- ⇒ “3.2 Removing and installing coolant pipes”, page 80

3.1 Exploded view - coolant pipes



Note

The arrow markings on coolant pipes and on ends of hoses must align.

Protecting by hand against dropping during removal or replacement of parts in which is not permitted. If required, use suitable Audi Audi A6/A7/A7 Sportback tools or equivalent tools.

Coolant pipes on engine

1 - Coolant hose

2 - Bolt

 □ 9 Nm

3 - Coolant pipe (left-side)

 □ Removing and installing
 ⇒ [page 80](#)

4 - Coolant hose

5 - Bolt

 □ 20 Nm

6 - Bolt

 □ 9 Nm

7 - Bolt

 □ 20 Nm

8 - Coolant pipe (right-side)

 □ With non-return valve
 □ Removing and installing
 ⇒ [page 82](#)

9 - O-ring

 □ Renew after removing

10 - Coolant hose

11 - O-ring

 □ Renew after removing

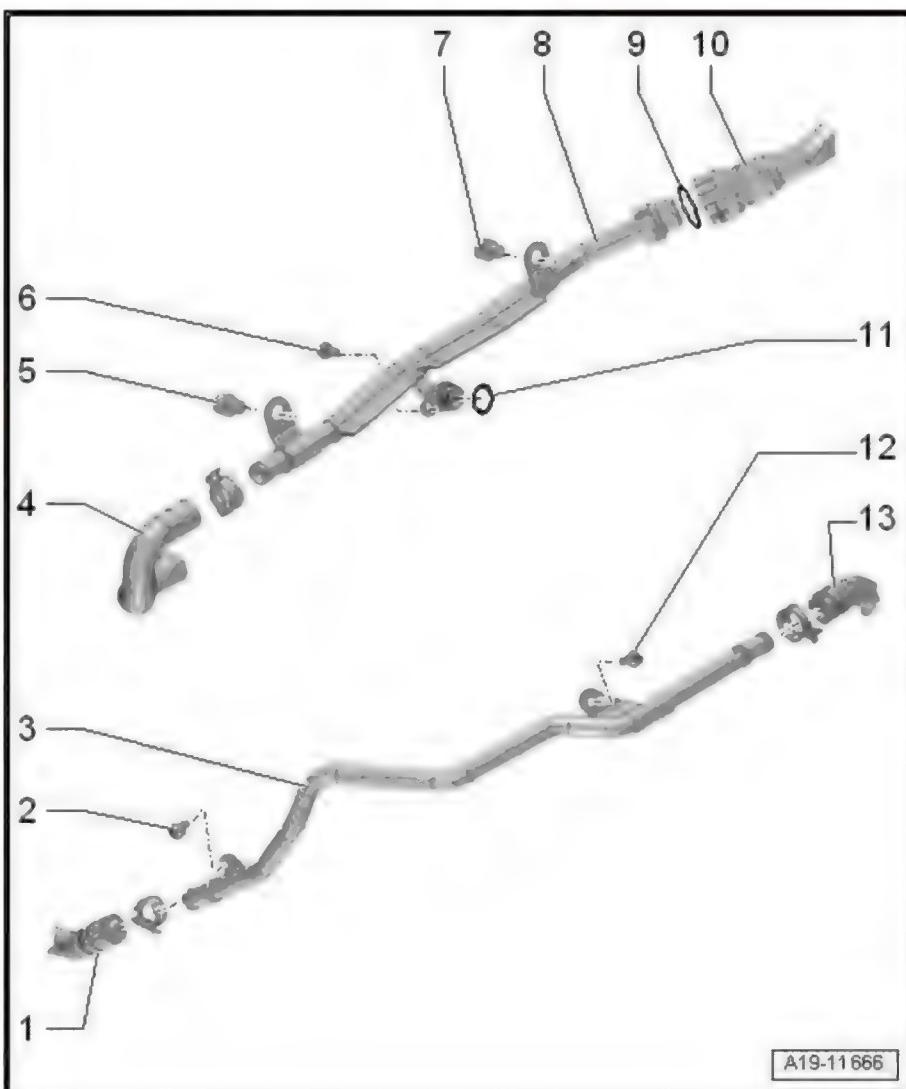
12 - Bolt

 □ Thread-forming

 □ Fit and screw in bolt by hand so that it is screwed into old thread. Then tighten bolt to torque

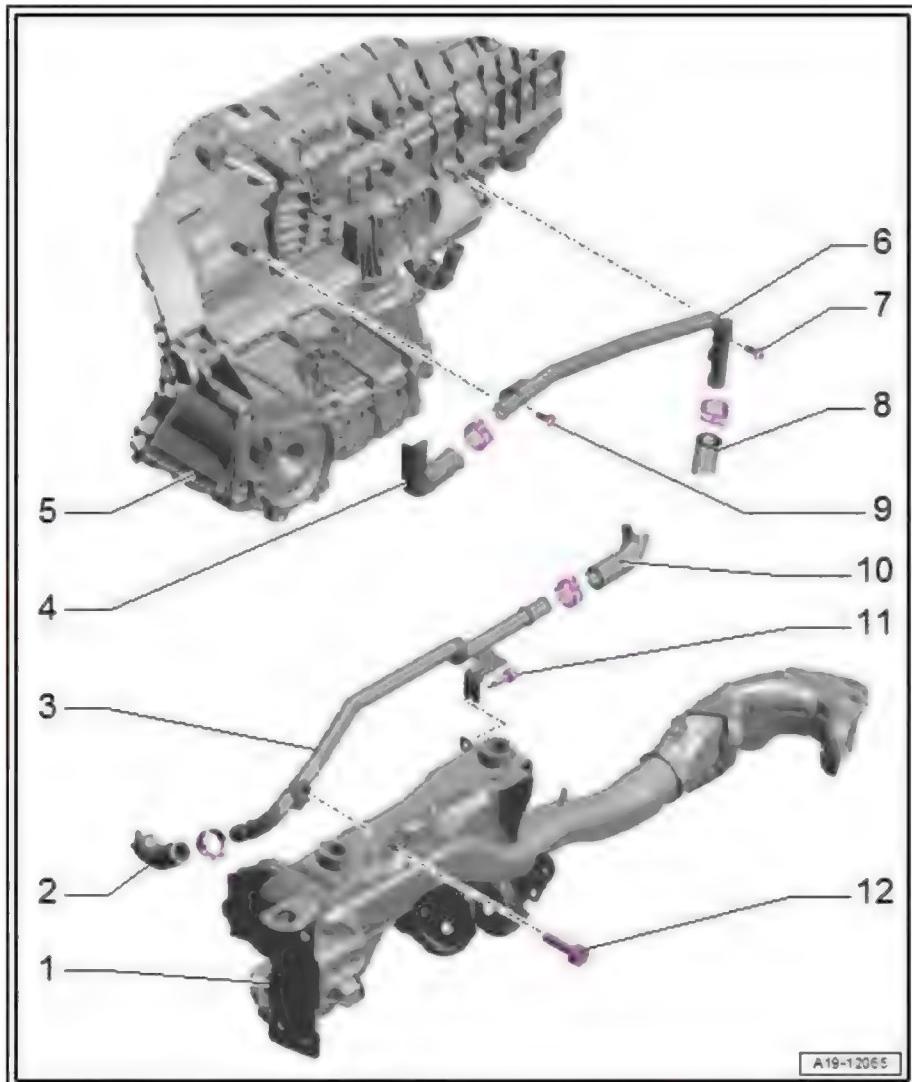
 □ 6 Nm

13 - Coolant hose



Coolant pipes on dual clutch gearbox 0CK

- 1 - Subframe
- 2 - Coolant hose
- 3 - Coolant pipe on subframe
 - Removing and installing
⇒ [page 87](#)
- 4 - Coolant hose
- 5 - Gearbox
- 6 - Coolant pipe (left-side) on gearbox
 - Removing and installing
⇒ [page 83](#)
- 7 - Bolt
- 9 Nm
- 8 - Coolant hose
- 9 - Bolt
- 9 Nm
- 10 - Coolant hose
- 11 - Bolt
- 23 Nm
- 12 - Bolt
- 23 Nm

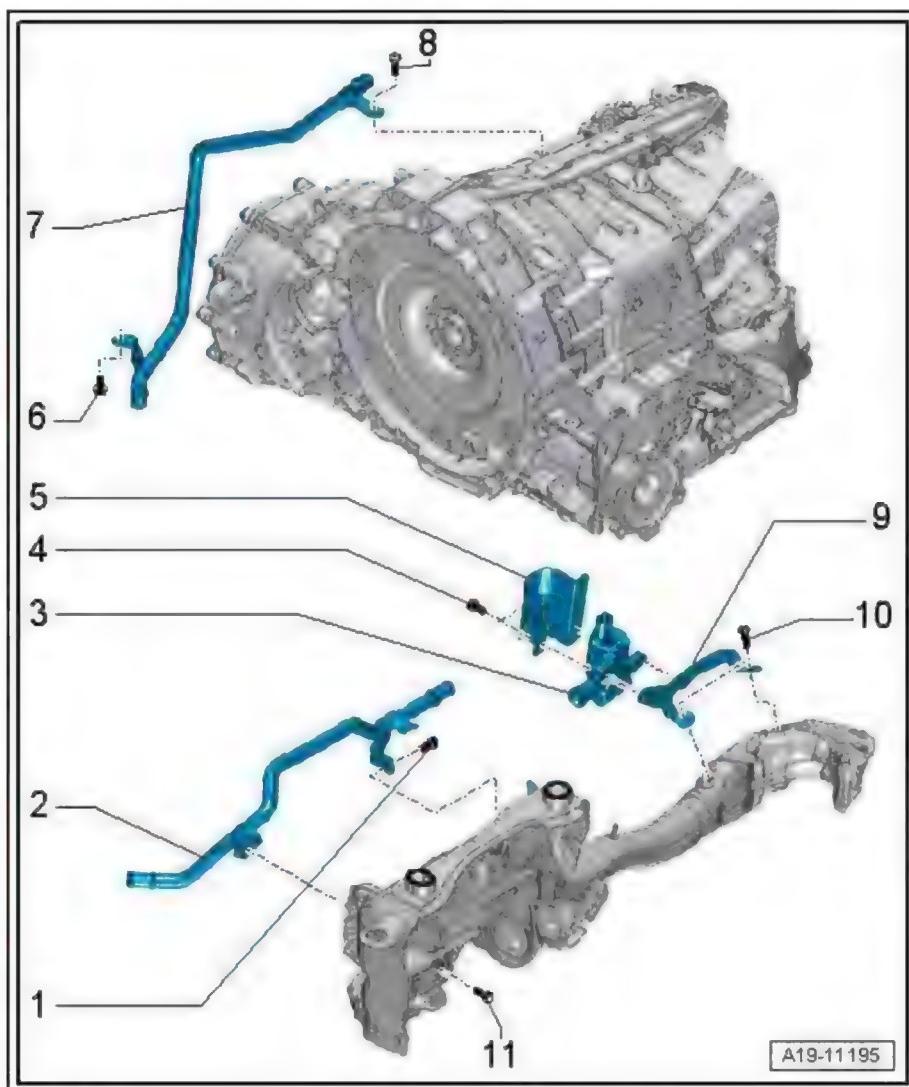


Coolant pipes on dual clutch gearbox 0B5/automatic gearbox 0BK



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG

- 1 - Bolt
 - 23 Nm
- 2 - Coolant pipe on subframe
 - Removing and installing
⇒ [page 87](#)
- 3 - Not fitted
- 4 - Not fitted
- 5 - Not fitted
- 6 - Bolt
 - 9 Nm
- 7 - Coolant pipe (right-side) on gearbox
 - Different versions available; for correct version refer to ⇒ Electronic parts catalogue
 - Removing and installing
⇒ [page 85](#)
- 8 - Bolt
 - 9 Nm
- 9 - Not fitted
- 10 - Not fitted
- 11 - Bolt
 - 23 Nm



3.2 Removing and installing coolant pipes

- ⇒ “3.2.1 Removing and installing coolant pipe (left-side)”,
[page 80](#)
- ⇒ “3.2.2 Removing and installing coolant pipe (right-side)”,
[page 82](#)
- ⇒ “3.2.3 Removing and installing coolant pipe on gearbox (left-side) - vehicles with dual clutch gearbox 0CK”, [page 83](#)
- ⇒ “3.2.4 Removing and installing coolant pipe on gearbox (right-side) - vehicles with dual clutch gearbox 0B5/automatic gearbox 0BK”, [page 85](#)
- ⇒ “3.2.5 Removing and installing coolant pipe on subframe”, [page 87](#)

3.2.1 Removing and installing coolant pipe (left-side)

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



Note

Place a cloth under coolant pipe to catch escaping coolant.

- Remove bolts -1- and -2-.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094- and detach -arrows-.

With respect to the correct use of information in this document, please refer to the Audi AG General Terms and Conditions of Sale at www.audi.com.

Installing

Installation is carried out in the reverse order; note the following:



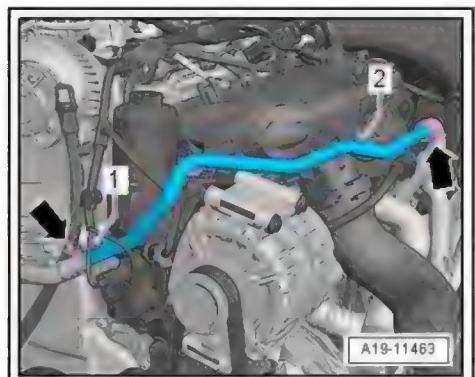
Note

- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- ◆ Do not reuse coolant.

- Fill up with coolant [⇒ page 62](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ [⇒ "3.1 Exploded view - coolant pipes", page 78](#)



3.2.2 Removing and installing coolant pipe (right-side)

Special tools and workshop equipment required

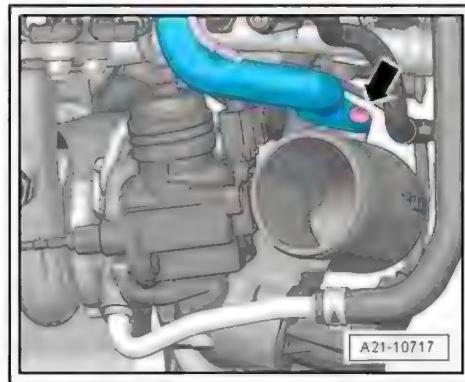
- ◆ Hose clip pliers - VAS 6362-



Removing

Protected by copyright. Copying permitted only in the framework of a private communication within a family circle.
© Audi AG 2017. All rights reserved. Audi, the Audi logo and A6 are trademarks of Audi AG. Please note: Information in this document may be subject to change without notice or obligation on the part of Audi AG with respect to the correctness of information in this document. Current data for Audi A6.

- Remove engine cover panel ⇒ **Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .**
- Remove air cleaner housing ⇒ [page 114](#) .
- Drain coolant ⇒ [page 62](#) .
- Remove bolt -arrow- and detach crankcase breather pipe from turbocharger.



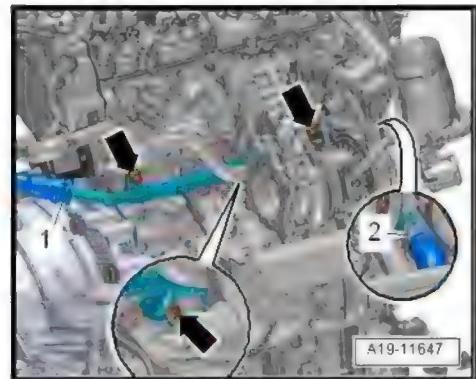
- Lift retaining clip -1-, release hose clip -2- and detach coolant hoses.
- Remove bolts -arrows-, detach coolant pipe (right-side) from cylinder block and remove coolant pipe.

Installing

Installation is carried out in the reverse order; note the following:



Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .



- Install air cleaner housing [⇒ page 114](#) .
- Connect coolant hose with plug-in connector [⇒ page 91](#) .



Do not reuse coolant.

- Fill up with coolant [⇒ page 62](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ [⇒ “3.1 Exploded view - coolant pipes”, page 78](#)
- ◆ [⇒ “2.1 Exploded view - air cleaner housing”, page 114](#)

3.2.3 Removing and installing coolant pipe on gearbox (left-side) - vehicles with dual clutch gearbox 0CK

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Drip tray for workshop hoist - VAS 6208-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. © Copyright by Audi AG, Audi A6, Audi A7, Audi A8, Audi Q5, Audi Q7 and Audi Q8. With respect to the correctness of information in this document, Audi AG, Audi A6, Audi A7, Audi A8, Audi Q5, Audi Q7 and Audi Q8 do not accept any liability.

- ◆ Hose clip pliers - VAS 6362-



- ◆ Protective gloves
- ◆ Safety goggles

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



WARNING

*The cooling system is under pressure when the engine is hot.
 Risk of scalding due to hot steam and hot coolant.*

Danger of scalding skin and other parts of the body.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

- Open filler cap -arrow- on coolant expansion tank.
- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Place drip tray for workshop hoist - VAS 6208- under connection.



- Clamp off coolant hose -3- with hose clamp -3094- .
- Remove bolts -arrows-.
- Clamp off coolant hose using hose clamp -3094- , release hose clip -1- and disconnect coolant hose.
- Loosen hose clip -2- and detach coolant pipe.

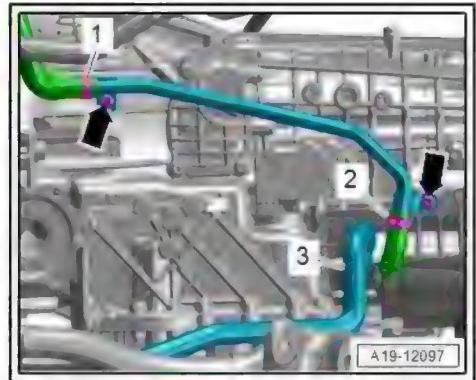
Installing

Installation is carried out in the reverse order; note the following:



Note

- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Do not reuse coolant.*



A19-12097

- Fill up with coolant [⇒ page 62](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ [⇒ "3.1 Exploded view - coolant pipes", page 78](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 : Noise insulation; Exploded view - noise insulation](#)

With respect to the applicable regulations, the relevant approvals and permits must be obtained. Copying for private or commercial purposes is prohibited without authorisation by AUDI AG. AUDI AG reserves the right to take legal action against unauthorised users.

3.2.4 Removing and installing coolant pipe on gearbox (right-side) - vehicles with dual clutch gearbox 0B5/automatic gearbox 0BK

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



W00-111130

- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-



- ◆ Protective gloves
- ◆ Safety goggles

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



WARNING

*The cooling system is under pressure when the engine is hot.
 Risk of scalding due to hot steam and hot coolant.*

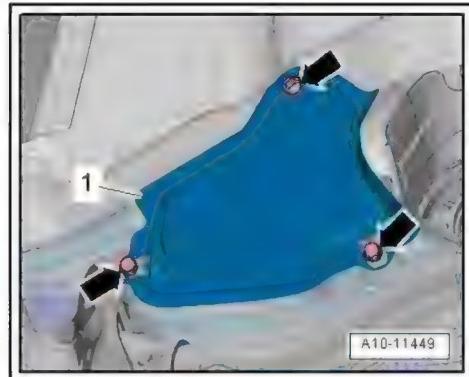
Danger of scalding skin and other parts of the body.
Printed in August 2011. © Copyright by AUDI AG. All rights reserved. Any unauthorized use or disclosure is illegal. The information contained in this document is subject to change without notice. With respect to the correctness of information in this document, the manufacturer, AUDI AG, can accept no responsibility.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

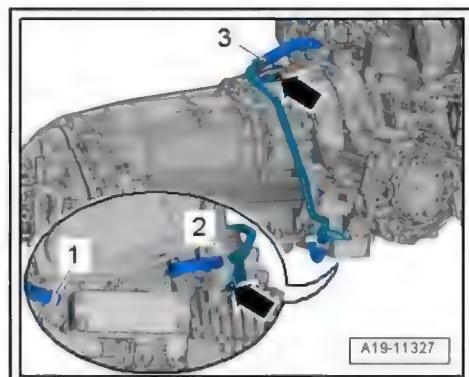
- Open filler cap -arrow- on coolant expansion tank.
- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



- Remove bolts -arrows- and detach heat shield (right-side)
 -1- on subframe.



- Place drip tray for workshop hoist - VAS 6208- under connection.
- Clamp off coolant hose -1- with hose clamp -3094- .
- Remove bolts -arrows-.
- Clamp off coolant hose -3- using hose clamp -3094- , release hose clip and disconnect coolant hose from coolant pipe on right side of gearbox.
- Release hose clip -2- and detach coolant pipe going to wheel housing (right-side).



Note

The illustration shows dual clutch gearbox 0B5.

Installing

Installation is carried out in the reverse order; note the following:



Note

- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .
- ◆ Do not reuse coolant.
- Fill up with coolant ⇒ [page 62](#) .
- Install engine cover panel ⇒ *Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel* .

Tightening torques

- ◆ ⇒ ["3.1 Exploded view - coolant pipes", page 78](#)
- ◆ Heat shield ⇒ *Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe*
- ◆ ⇒ *General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation*

© AUDI AG. All rights reserved. The material is intended for internal purposes only and may not be reproduced, published or distributed without the prior written consent of AUDI AG. AUDI AG shall not be liable in respect of the correctness of information in this document. Copyright by AUDI AG.

3.2.5 Removing and installing coolant pipe on subframe

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



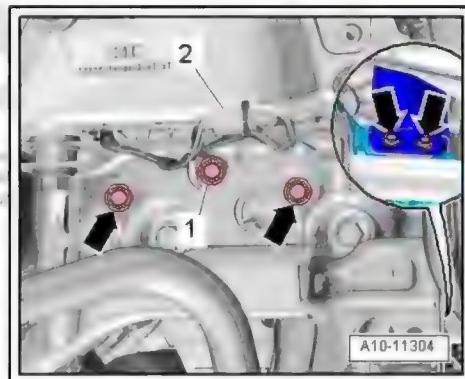
Removing

- Support engine in installation position [⇒ page 31](#) .
- Remove noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove wheel spoiler (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front) .
- Remove bolts for engine mounting -arrows-.
- Move retaining plate for engine mounting clear to one side.



Disregard items -1 and 2-.

Protected by copyright. Copying for private or internal use is permitted. Copying for commercial purposes is prohibited.
© AUDI AG. All rights reserved. Reproduction of this document
in whole or in part, even with a reference to the source, is illegal.



- Clamp off coolant hoses using hose clamps -3094-, release hose clips -arrows- and disconnect hoses.
- Unscrew bolts -1, 2- and detach coolant pipe.

Installing

Installation is carried out in the reverse order; note the following:



Note

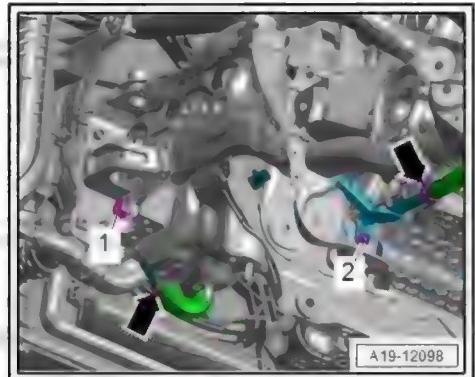
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *Do not reuse coolant.*

- Fill up with coolant ⇒ [page 62](#)

Printed on 01.07.2017. Downloaded from [www.audi.com](#). Copyright © 2017 Audi AG. All rights reserved. Audi and its logo are registered trademarks of Audi AG. The use of this document is subject to the terms and conditions of use at [www.audi.com](#). Any unauthorized use is prohibited. The information contained in this document is based on the knowledge and experience available at the time of printing. Audi AG does not accept any responsibility for the correctness of the information. The information contained in this document is not binding. The use of this document is subject to the terms and conditions of use at [www.audi.com](#). Any unauthorized use is prohibited. The information contained in this document is based on the knowledge and experience available at the time of printing. Audi AG does not accept any responsibility for the correctness of the information. The information contained in this document is not binding.

Tightening torques

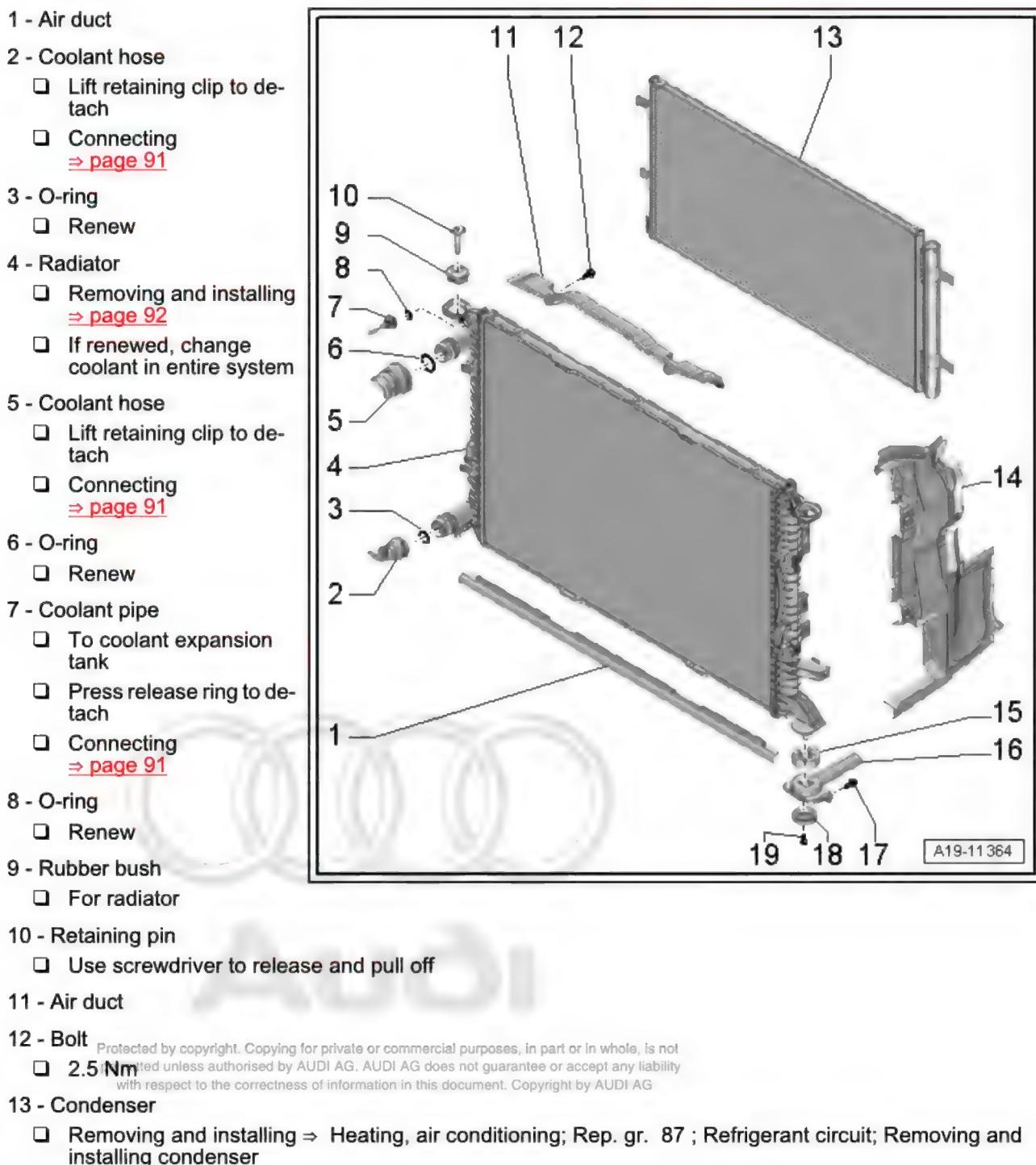
- ◆ ⇒ “[3.1 Exploded view - coolant pipes](#)”, [page 78](#)
- ◆ ⇒ “[2.1 Exploded view - assembly mountings](#)”, [page 27](#)
- ◆ Wheel spoiler ⇒ General body repairs, exterior; Rep. gr. 66 ;
Wheel housing liners; Exploded view - wheel housing liner
(front)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insula-
tion; Exploded view - noise insulation



4 Radiator/radiator fans

- ⇒ “4.1 Exploded view - radiator/radiator fans”, page 90
- ⇒ “4.2 Exploded view - radiator cowl and radiator fans”, page 92
- ⇒ “4.3 Removing and installing radiator”, page 92
- ⇒ “4.4 Removing and installing radiator cowl”, page 95
- ⇒ “4.5 Removing and installing radiator fan V7”, page 98

4.1 Exploded view - radiator/radiator fans



- 14 - Air duct
 - 15 - Rubber bush
 - For radiator
 - 16 - Radiator bracket
 - 17 - Bolt
 - 5 Nm
 - 18 - Washer
 - 19 - Bolt
 - 4.5 Nm

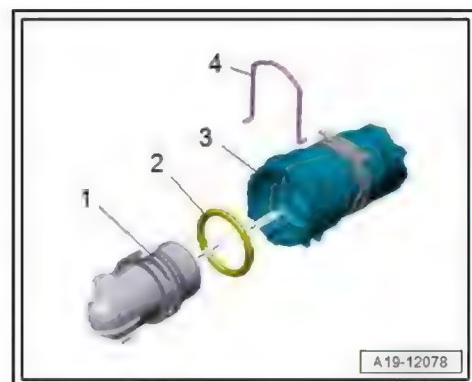
Connecting coolant hose with plug-in connector



Note

If damaged, renew retaining clip -4.

- Remove old O-ring -2- from coolant hose -3-.
 - Lubricate new O-ring lightly with coolant and fit O-ring in coolant hose.
 - Press coolant hose onto coolant pipe -1- until it engages with a click.
 - Press coolant hose in again and then pull to check that plug-in connector is correctly engaged.



4.2 Exploded view - radiator cowl and radiator fans

1 - Radiator fan control unit

- Radiator fan control unit
- J293- with radiator fan control unit 2 - J671-
- Removing and installing
[⇒ page 98](#)

2 - Bolt

- 3.5 Nm

3 - Bolt

- 5 Nm

4 - Radiator cowl

- Removing and installing
[⇒ page 95](#)

5 - Radiator fan - V7-

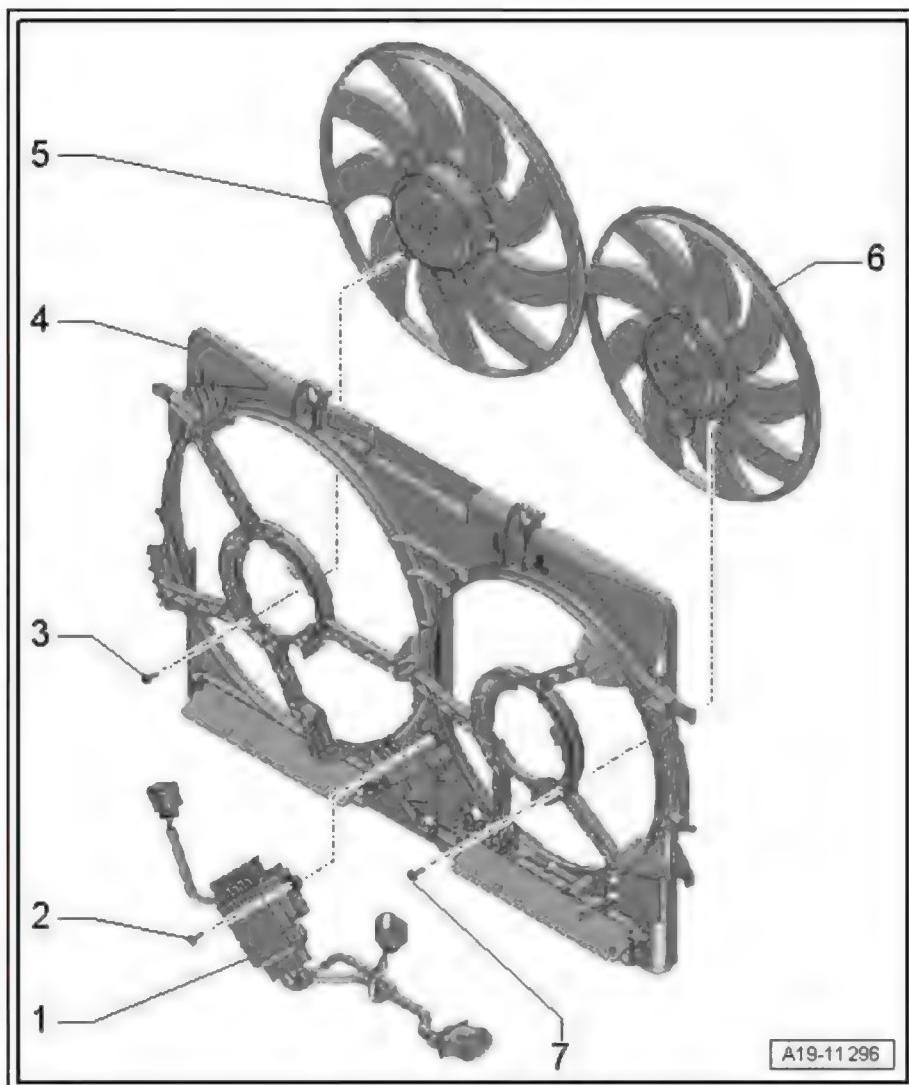
- Removing and installing
[⇒ page 98](#)

6 - Radiator fan 2 - V177-

- Removing and installing
[⇒ page 98](#)

7 - Bolt

- 5 Nm



4.3 Removing and installing radiator



Note

Radiator and radiator cowl can only be removed and installed together.

Removing

- Drain coolant [⇒ page 62](#).
- Remove bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing bumper cover .
- Remove charge air cooler [⇒ page 103](#).
- Remove headlight (right-side) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .

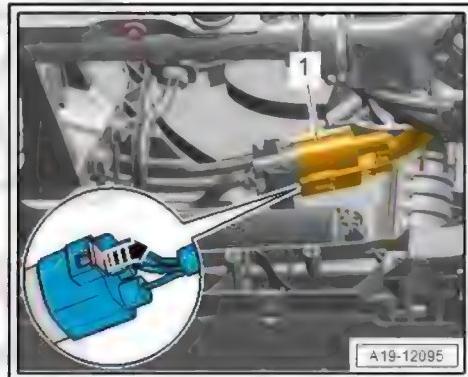


WARNING

Risk of injury as the radiator fans may start up automatically.

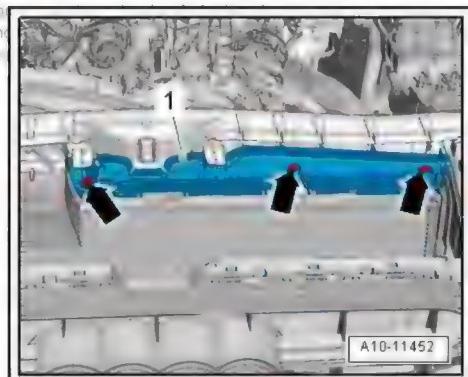
- ◆ *Unplug electrical connectors before starting to work in the area of radiator cowl.*

- Unplug electrical connector -1- for radiator fan (push retainer to the rear -arrow- and press down release catch).



- Remove bolts -arrows- and detach air duct -1-

Printed current: 09/2011 Page 1 of 2 | Last update: 09/2011 by AUDI AG. AUDI AG does not accept any responsibility with respect to the correctness of information in this document.

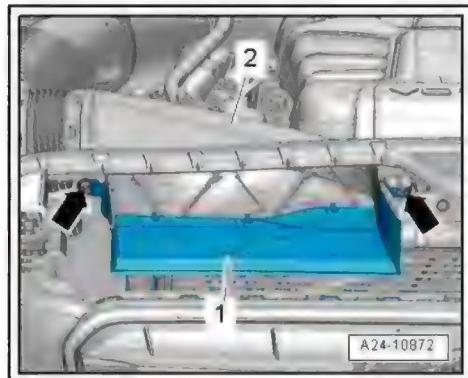


- Remove bolts -arrows- and detach air duct -1-.

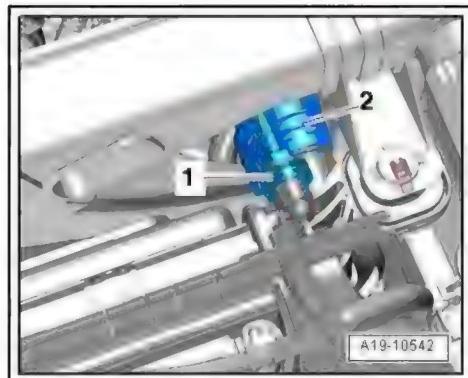


Note

Disregard -item 2-.



- Lift retaining clips -1- and -2- and detach connection from radiator.



- Unplug electrical connector -2- on refrigerant pressure and temperature sender - G395- .

**Caution**

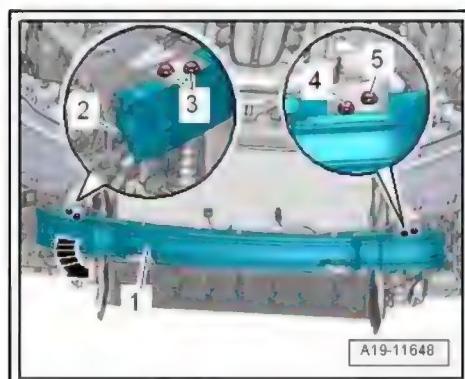
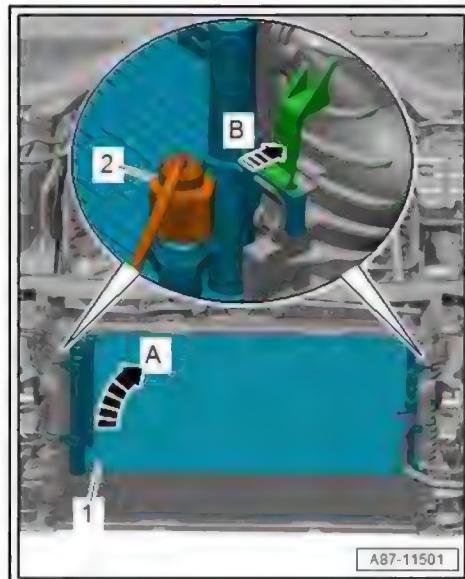
Risk of damage to condenser, refrigerant lines and refrigerant hoses.

- ◆ *Do NOT stretch, kink or bend refrigerant lines and hoses.*

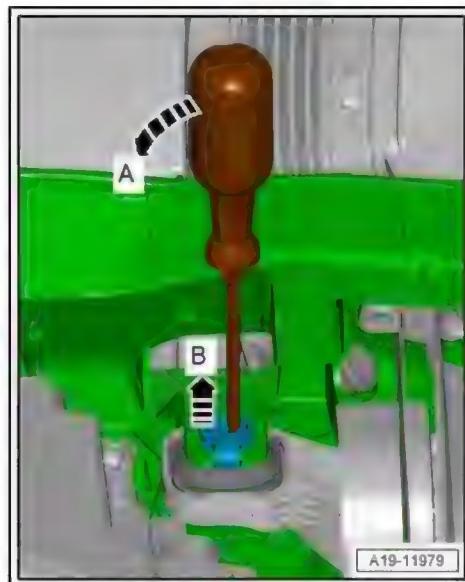
- Disengage retaining clip in direction of -arrow B- on both sides.
- First pull condenser -1- out of radiator on right side in direction of -arrow A-.
- Then carefully guide condenser out on the left, paying attention to the refrigerant lines.
- Swivel condenser to left side.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

- **Move electrical wiring harness -2- clear**.
- Remove bolts -3 and 4- and loosen bolt -5-.
- Swivel impact bar -1- towards front -arrow-.



- Release retaining pins for radiator on both sides and pull out upwards -arrows-.



- Remove bolt -1- on both sides and detach radiator bracket with radiator from lock carrier -arrow-.
- Detach radiator.



- Press locking tabs on left and right sides of radiator cowl together -arrow- and lift radiator cowl off radiator.

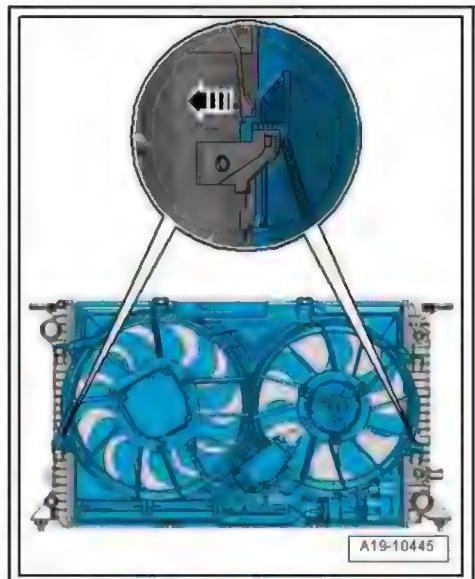
Installing

Installation is carried out in the reverse order; note the following:



If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Installing radiators and condensers .

- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Connect coolant hose with plug-in connector [⇒ page 91](#) .
- Install headlight (right-side) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .
- Install charge air cooler [⇒ page 103](#) .
- Install bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing bumper cover .



Do not reuse coolant.

- Fill up with coolant [⇒ page 62](#) .

Tightening torques

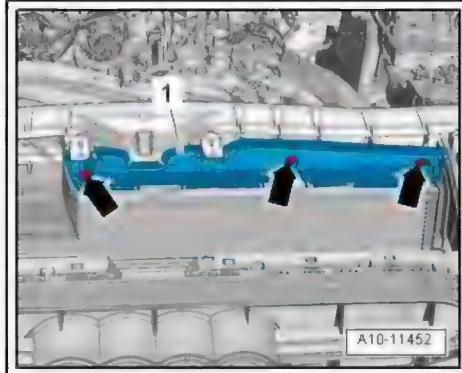
- ◆ [⇒ "4.1 Exploded view - radiator/radiator fans", page 90](#)
- ◆ [⇒ "2.1 Exploded view - air cleaner housing", page 114](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper \(front\); Exploded view - impact bar](#)

4.4 Removing and installing radiator cowl

Removing

- Drain coolant [⇒ page 62](#) .
- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

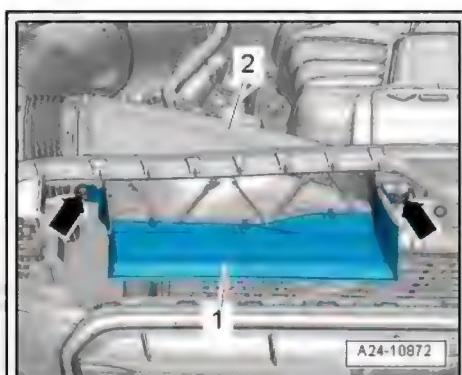
- Remove closure plate for bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -1-.



- Remove bolts -arrows- and detach air duct -1-.

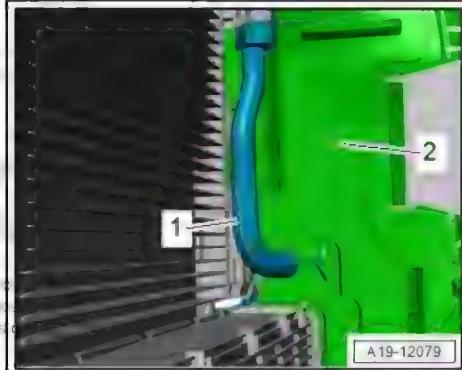


Disregard -item 2-.

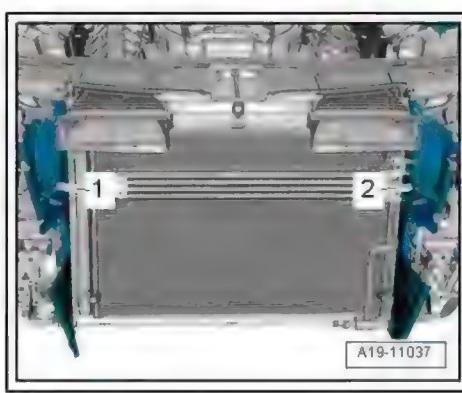


- ◆ Depending on the version, an air duct -2- that surrounds the refrigerant line -1- may be fitted on the left, as shown in the illustration.
- ◆ This air duct cannot be removed; it remains in its installation position after the radiator has been unclipped and may have to be pushed to one side.

Printed from www.audi.com/service/repair/manuals. © AUDI AG. AUDI AG reserves all rights. Any unauthorized use, reproduction or communication of the contents of this document is prohibited.



- Unclip air ducts -1 and 2-.



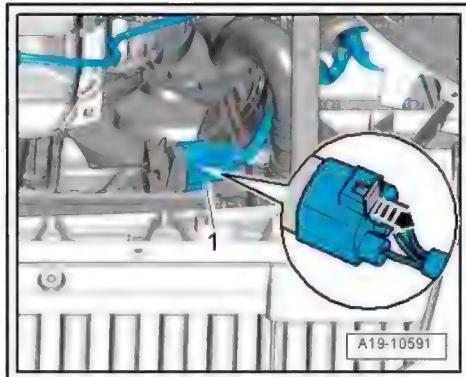


WARNING

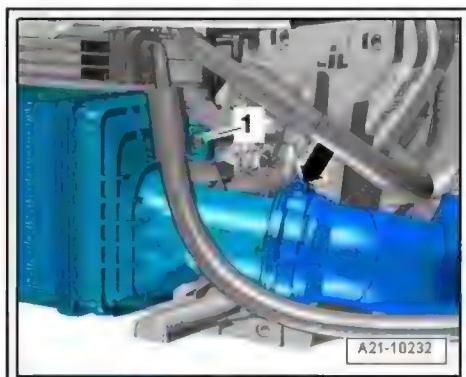
Risk of injury as the radiator fans may start up automatically.

- ◆ *Unplug electrical connectors before starting to work in the area of radiator cowl.*

- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).
- Release hose clip -arrow- and detach air hose from charge air cooler (left and right).



A19-10591



A21-10232

- Remove bolt -1- on both sides and detach radiator bracket with radiator from lock carrier -arrow-.
- Press radiator slightly towards front.



A19-10543

- Press locking tabs on left and right sides of radiator cowl simultaneously -arrow- and detach radiator cowl downwards from radiator.

Installing

Installation is carried out in the reverse order; note the following:

- Install lock carrier cover and closure plate at bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Exploded view - bumper cover .
- Connect coolant hose with plug-in connector [⇒ page 91](#) .



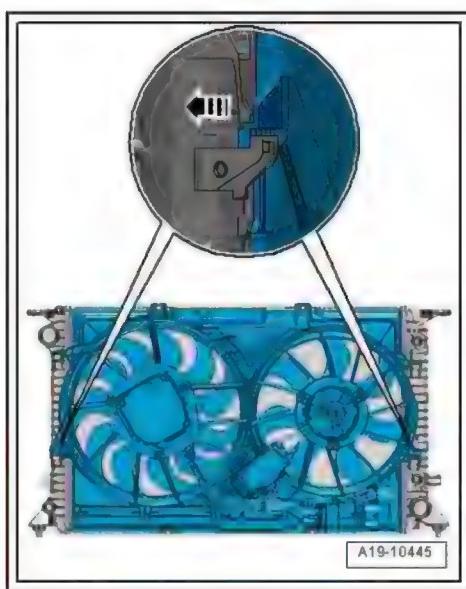
Note

Do not reuse coolant. Private or commercial purposes in particular are not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the correctness of information in this document. Copyright © AUDI AG.

- Fill up with coolant [⇒ page 62](#) .

Tightening torques

- ◆ [⇒ "2.1 Exploded view - air cleaner housing", page 114](#)



A19-10445

4.5 Removing and installing radiator fan - V7-

⇒ "4.5.1 Removing and installing radiator fans V7 / V177",
[page 98](#)

⇒ "4.5.2 Removing and installing radiator fan control unit",
[page 98](#)

4.5.1 Removing and installing radiator fans - V7- / -V177-

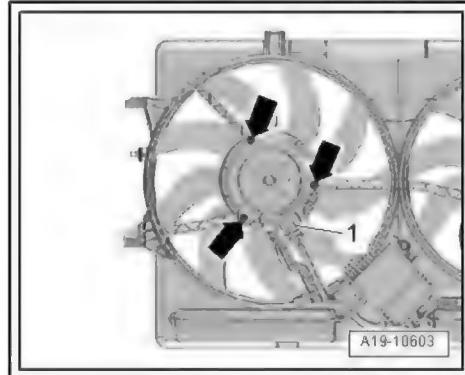
Removing



Note

Fit all cable ties in the original positions when installing.

- Remove radiator cowl ⇒ [page 95](#).
- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach radiator fan - V7- (left-side).



- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach radiator fan 2 - V177- (right-side).

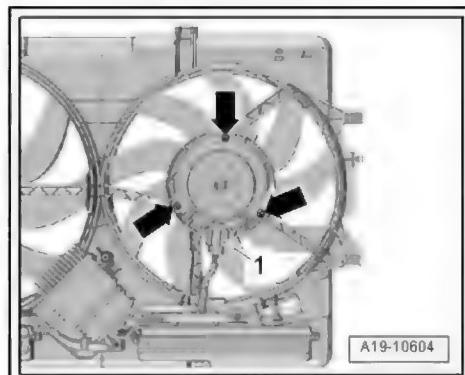
Installing

Installation is carried out in the reverse order; note the following:

- Install radiator cowl ⇒ [page 95](#).

Tightening torques

- ◆ ⇒ "4.2 Exploded view - radiator cowl and radiator fans",
[page 92](#)



4.5.2 Removing and installing radiator fan control unit

Removing

- Remove noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



WARNING

Risk of injury as the radiator fans may start up automatically.

- ◆ *Unplug electrical connectors before starting to work in the area of radiator cowl.*

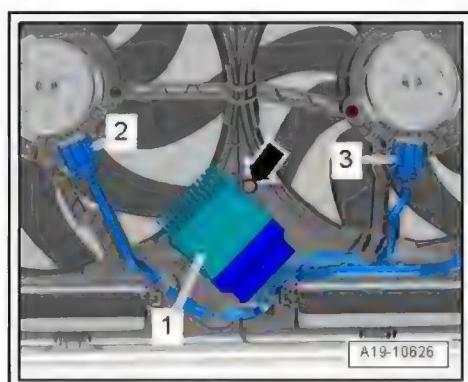
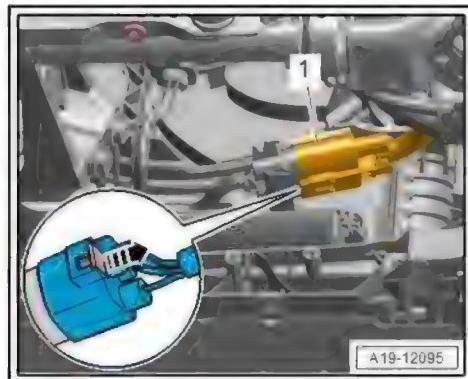
- Take electrical connector -1- for radiator fan out of bracket and unplug connector (push retainer to the rear -arrow- and press down release catch).
- Move clear electrical wiring harness going to radiator fan control unit.
- Unplug electrical connectors -2- and -3-.
- Unscrew bolt -arrow- and remove radiator fan control unit -1-.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ ["4.2 Exploded view - radiator cowl and radiator fans", page 92](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



Protected by copyright. Copying or unauthorized commercial distribution of this document is illegal.
Produced by AUDI AG. All rights reserved. © AUDI AG 2011. This document is subject to change without notice.
With respect to the contents, see information in this document. Copyright by AUDI AG.

21 – Turbocharging/supercharging

1 Turbocharger

⇒ “1.1 Exploded view - turbocharger”, page 100

⇒ “1.2 Removing and installing turbocharger”, page 100

1.1 Exploded view - turbocharger

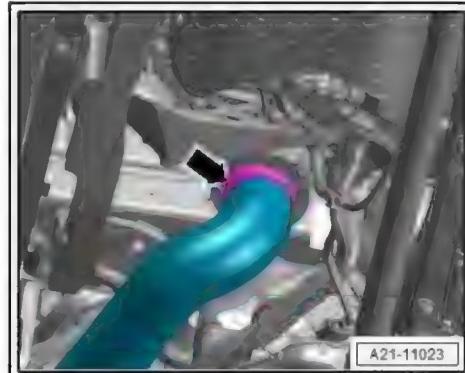
All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Exploded view - turbocharger .

Protected by copyright. Copying for private or commercial purposes is prohibited without written permission from AUDI AG. All rights reserved. © AUDI AG 2017. All rights reserved. Confidentiality by AUDI AG.

1.2 Removing and installing turbocharger

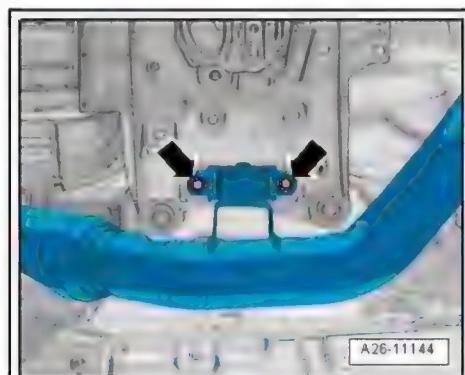
Removing

- Remove noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Drain coolant ⇒ page 62 .
- Open hose clip -arrow-, detach air hose and swivel to side.



A21-11023

- Unscrew bolts -arrows- for front silencer.



A26-11144

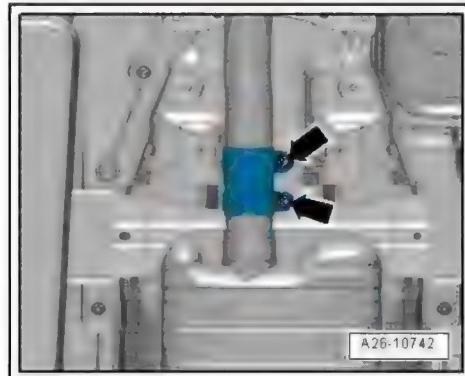


Caution

Risk of damage to flexible joints in front silencer.

- ◆ *Do NOT bend the flexible joints in the front silencer more than 10°.*

- Loosen bolted connections -arrows- and push clamp towards rear.



A26-10742

- Lower front silencer -2- slightly and secure it with a cable tie -1-, as shown in illustration.
- Remove air cleaner housing [⇒ page 114](#).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Removing and installing turbocharger .

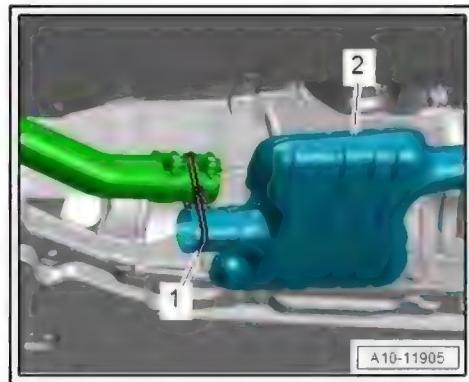
Installing

Additional work:

- Install air cleaner housing [⇒ page 114](#).

Tightening torques

- ◆ [⇒ "1.1 Exploded view - silencers", page 128](#)
- ◆ [⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)



A10-11905



Protected by copyright. Copying or unauthorized use, in whole or in part, is prohibited by law. © 2017 Audi AG. All Audi AG trademarks and trade dress are used by AMAG with the prior written consent of Audi AG. The information contained in this document is property of AMAG.

2 Charge air system

- ⇒ “2.1 Exploded view - charge air system”, page 102
- ⇒ “2.2 Exploded view - hose connections for charge air system”, page 103
- ⇒ “2.3 Removing and installing charge air cooler”, page 103
- ⇒ “2.4 Removing and installing charge pressure sender G31”, page 104
- ⇒ “2.5 Checking charge air system for leaks”, page 105

2.1 Exploded view - charge air system

- Observe rules for cleanliness ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Rules for cleanliness .

1 - Charge air cooler

- Removing and installing
⇒ page 103

2 - Hose clip

3 - Air hose

- To turbocharger
- Installing ⇒ page 103

4 - Hose clip

5 - Hose clip

6 - Air hose

- To intake manifold
- Installing ⇒ page 103

7 - Hose clip

8 - O-ring

- Renew

9 - Charge pressure sender - G31-

- Removing and installing
⇒ page 104

10 - Bolt

- 5 Nm

11 - Rubber grommet

12 - Bush

13 - Nut

- 9 Nm

14 - Rubber grommet

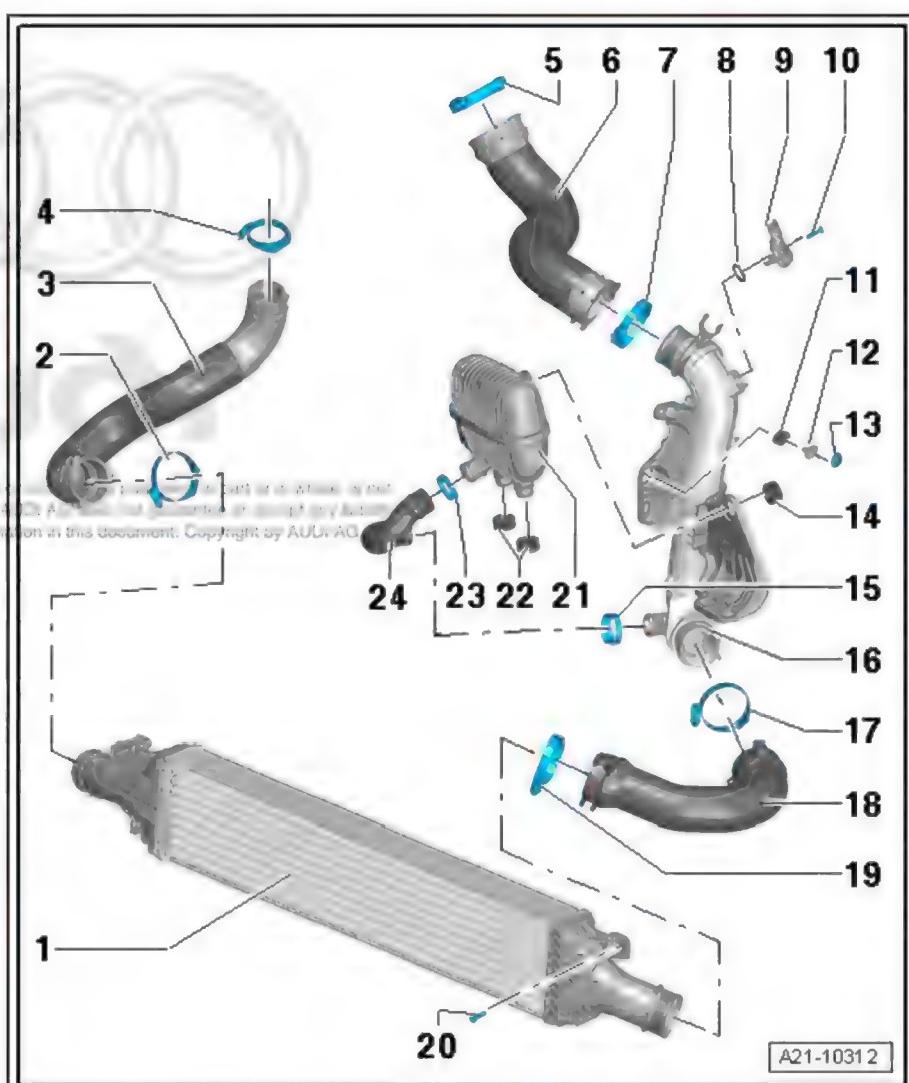
15 - Hose clip

16 - Air pipe

17 - Hose clip

18 - Air hose

- From charge air cooler
- Installing ⇒ page 103



A21-10312

19 - Hose clip

20 - Bolt

7 Nm

21 - Resonator

22 - Rubber grommet

23 - Hose clip

24 - Air hose

To resonator

Installing [⇒ page 103](#)



2.2 Exploded view obj hose connections for charge air system

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system .

2.3 Removing and installing charge air cooler

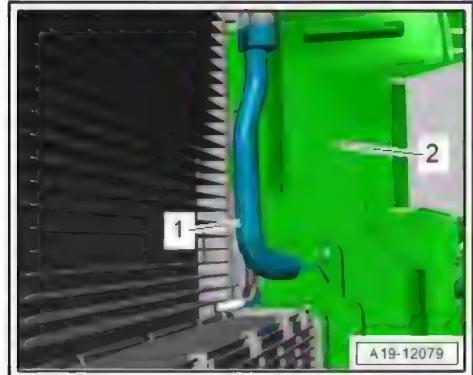
Removing

- Remove closure plate at bumper cover and lock carrier cover
⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

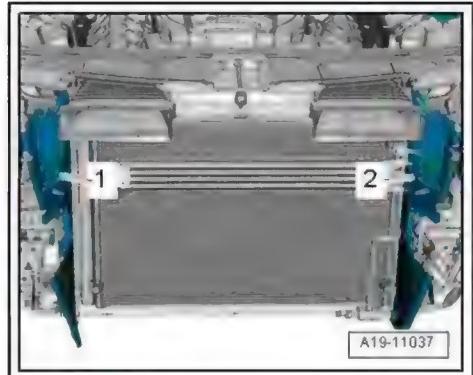


Note

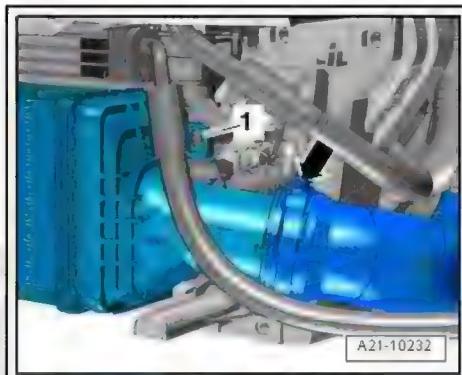
- ◆ Depending on the version, an air duct -2- that surrounds the refrigerant line -1- may be fitted on the left, as shown in the illustration.
- ◆ This air duct cannot be removed; it remains in its installation position after the radiator has been unclipped and may have to be pushed to one side.



- Unclip air ducts -1 and 2-.



- Release hose clip -arrow- and detach air hose from charge air cooler.
- Remove bolt -1-.

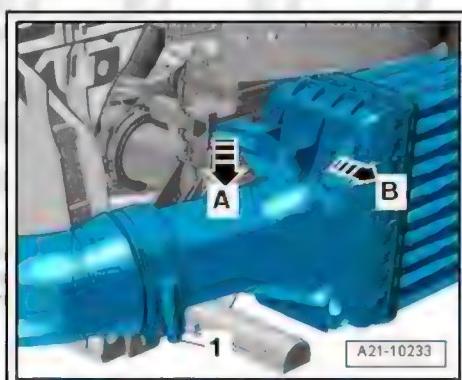


- Release hose clip -1- and detach air hose from charge air cooler.
- Push catch down -arrow A- and move top of charge air cooler slightly in direction of -arrow B-.
- Disengage and detach charge air cooler upwards.

Installing

Installation is carried out in the reverse order; note the following:

Service information 21
permitted unless author
with respect to the cor



Note

If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00; Repair notes; Installing radiators and condensers .

- Install lock carrier cover and closure plate for bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 102](#)
- ◆ ⇒ [“2.2 Exploded view - hose connections for charge air system”, page 103](#)

2.4 Removing and installing charge pressure sender - G31-

Removing

- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and pull charge pressure sender - G31- out of air pipe.

Installing

Installation is carried out in the reverse order; note the following:

Note

Fit new O-ring.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 102](#)



2.5 Checking charge air system for leaks

Special tools and workshop equipment required

- ◆ Charge air system tester - V.A.G 1687-



Procedure

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Open hose clip -arrow-, detach air hose and swivel to side.



- Depending on hose diameter, insert adapter - 1687/10- , -1687/11- or -1687/12- into air hose -1- and secure with hose clip.
- Connect charge air system tester - V.A.G 1687- as shown on illustration.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Checking charge air system for leaks .

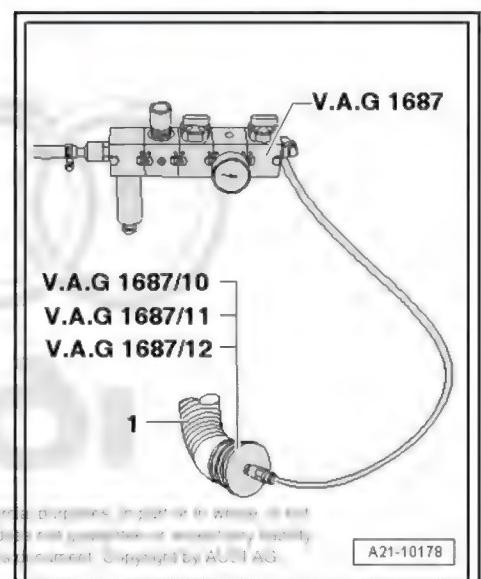


Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



24 – Mixture preparation - injection

1 Injection system

⇒ “1.1 Overview of fitting locations - injection system”,
[page 106](#)

1.1 Overview of fitting locations - injection system

Overview of fitting locations - engine compartment

1 - Right electrohydraulic engine mounting solenoid valve - N145-

- Fitting location
[⇒ page 108](#)

2 - Lambda probe - G39- and Lambda probe heater - Z19-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

3 - Lambda probe after catalytic converter - G130- and Lambda probe heater 1 after catalytic converter - Z29-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

4 - Coolant circulation pump - V50-

- Fitting location
[⇒ page 108](#)
- Exploded view
[⇒ page 68](#)

5 - Gear detection sensor - G604-

- For vehicles with manual gearbox
- Fitting location
[⇒ page 108](#)

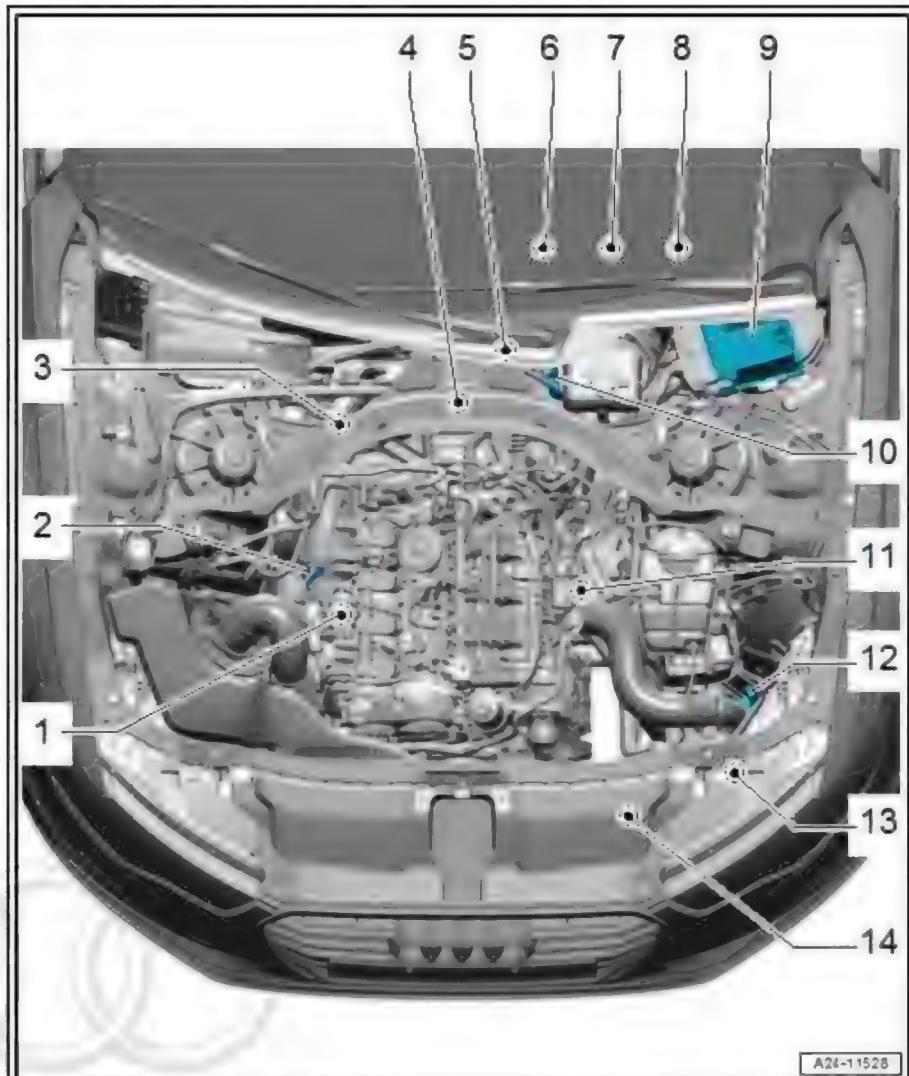
6 - Accelerator position sender - G79- and accelerator position sender 2 - G185-

- Fitting location [⇒ page 107](#)
- Exploded view ⇒ Fuel supply system; Rep. gr. 20 ; Accelerator mechanism; Exploded view - accelerator pedal module

Protective film for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for damage resulting from the incorrect use of this document. Copyright by AUDI AG.

7 - Brake light switch - F1 - Information in this document. Copyright by AUDI AG.

- Fitting location [⇒ page 107](#)
- Removing and installing ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing brake light sensor



A24-11528

8 - Clutch position sender - G476-

- With clutch pedal switch - F36- / clutch pedal switch for engine start - F194-
- For vehicles with manual gearbox
- Fitting location [⇒ page 107](#)

9 - Engine control unit - J623-

- Removing and installing [⇒ page 125](#)

10 - Brake servo pressure sensor - G294-

11 - Left electrohydraulic engine mounting solenoid valve - N144-

- Fitting location [⇒ page 108](#)

12 - Charge pressure sender - G31-

- Exploded view [⇒ page 102](#)

13 - Continued coolant circulation pump - V51-

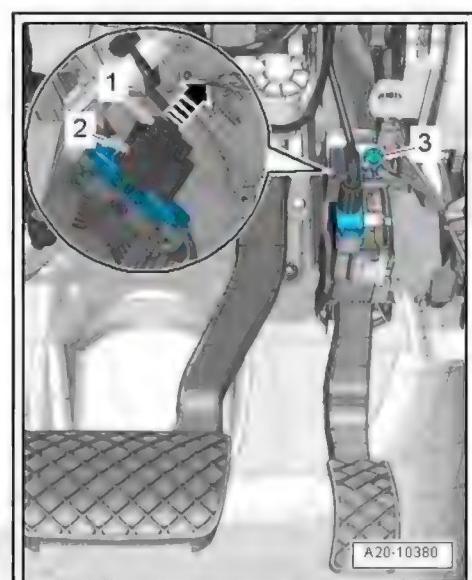
- Fitting location [⇒ page 108](#)
- Exploded view [⇒ page 68](#)

14 - Radiator outlet coolant temperature sender - G83-

- Fitting location [⇒ page 108](#)

Accelerator position sender - G79- and accelerator position sender 2 - G185-

2 - Electrical connector

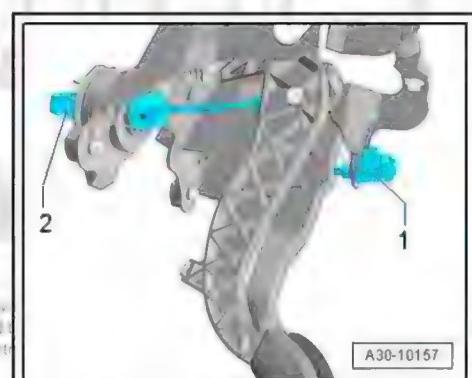


Brake light switch - F- / clutch position sender - G476-

◆ On mounting bracket for pedal cluster

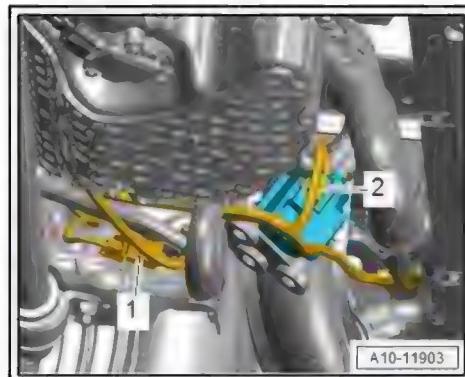
1 - Brake light switch - F-

2 - Clutch position sender - G476- with clutch pedal switch - F36- / clutch pedal switch for engine start - F194- for vehicles with manual gearbox



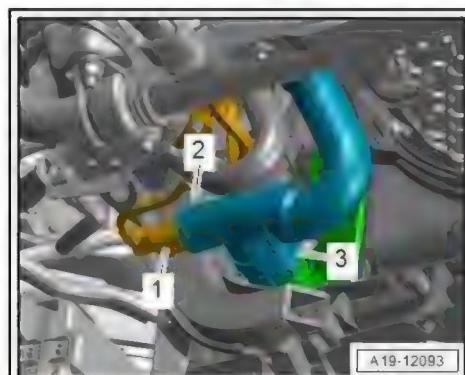
Fitting location of electrohydraulic engine mounting solenoid valves -N144- / -N145-, continued coolant circulation pump - V51-

- ◆ Electrohydraulic engine mounting solenoid valves -N144- / -N145- integrated in engine mountings (both sides)
- 1 - Electrical connector for electrohydraulic engine mounting solenoid valve
- ◆ Continued coolant circulation pump - V51- on longitudinal member (left-side)
- 2 - Electrical connector for continued coolant circulation pump - V51-



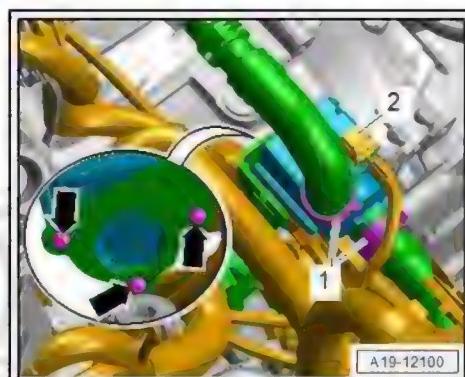
Fitting location of radiator outlet coolant temperature sender - G83-

- ◆ -Item 1- in coolant hose on radiator (bottom left)



Fitting location of coolant circulation pump - V50-

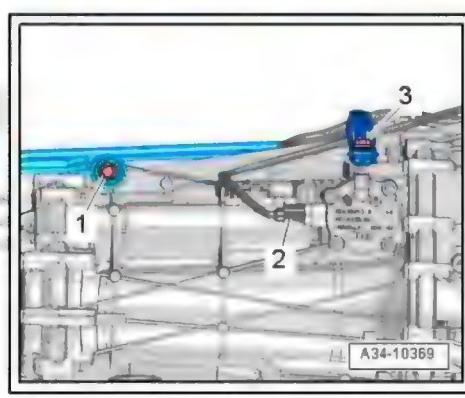
- ◆ On top of gearbox.
- 2 - Electrical connector for coolant circulation pump - V50-



Fitting location of gear detection sensor - G604-

- ◆ On right side of manual gearbox
- 2 - Electrical connector for gear detection sensor - G604-

Protective caps must be placed on the electrical connectors of the pump and the sensor when the vehicle is not in operation. If the protective caps are removed, the sensor must be calibrated again. A19-12100



Overview of fitting locations - engine (view from above)

1 - Ignition coil 1 with output stage - N70-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

2 - Ignition coil 2 with output stage - N127-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

3 - Ignition coil 3 with output stage - N291-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

4 - Ignition coil 4 with output stage - N292-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

5 - Hall sender 3 - G300-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

6 - Fuel metering valve - N290- or fuel pressure regulating valve - N276-

- Fuel metering valve - N290- or fuel pressure regulating valve - N276- may be fitted, depending on version
- Integrated in high-pressure pump

7 - Injector 2, cylinder 4 - N535-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

8 - Fuel pressure sender for low pressure - G410-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

9 - Intake air temperature sender - G42- / intake manifold pressure sender - G71-

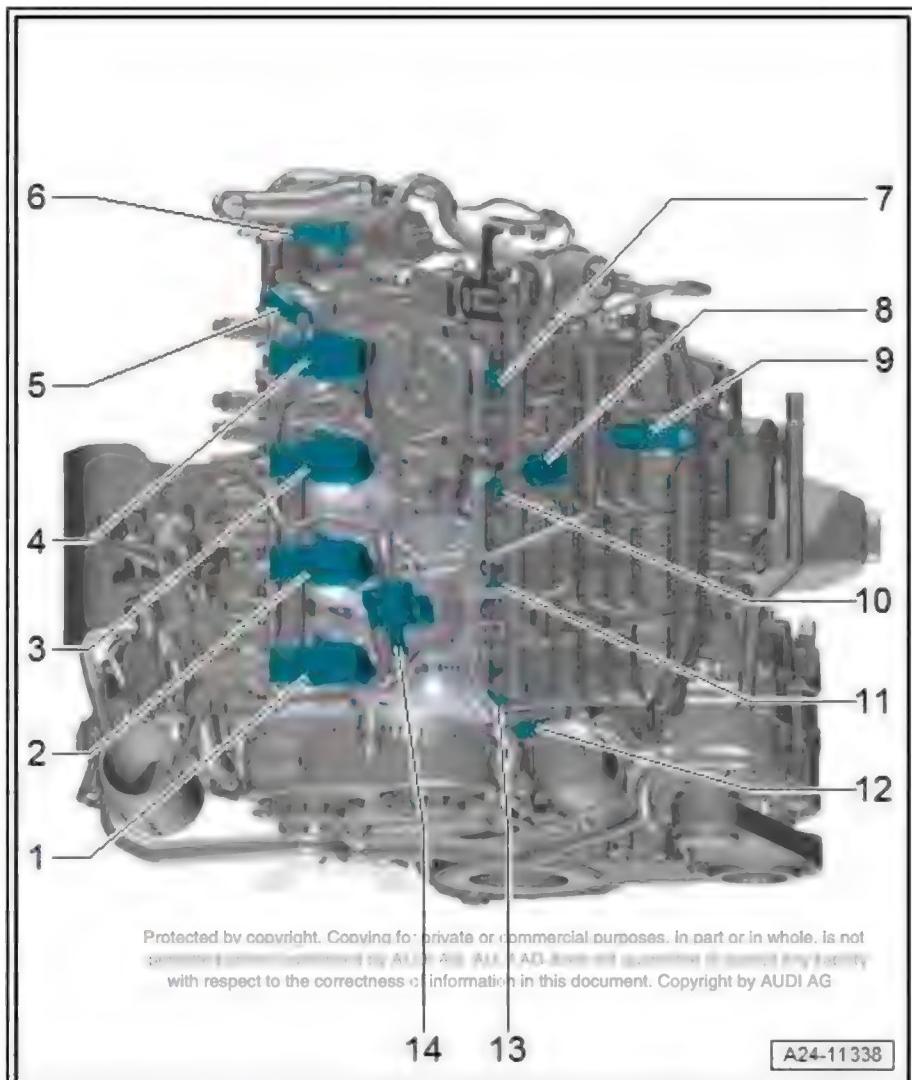
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

10 - Injector 2, cylinder 3 - N534-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

11 - Injector 2, cylinder 2 - N533-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors



12 - Intake manifold flap potentiometer - G336-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

13 - Injector 2, cylinder 1 - N532-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

14 - Activated charcoal filter solenoid valve 1 - N80-

Overview of fitting locations - engine (view from left side)

1 - Actuator for engine temperature regulation - N493-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat

2 - Injector, cylinder 2 - N31-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

3 - Injector, cylinder 1 - N30-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

4 - Fuel pressure sender - G247-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

5 - Throttle valve module - J338-

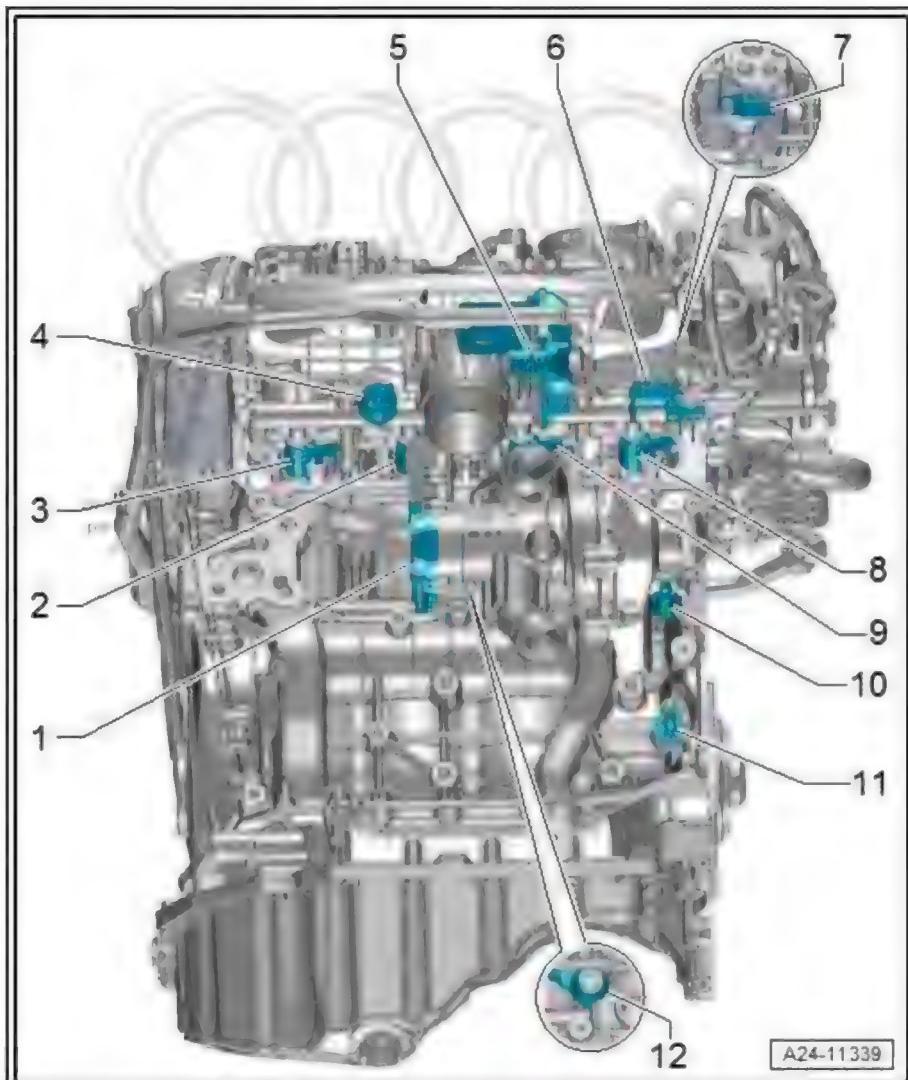
- Including throttle valve drive (electric throttle operation) - G186- , angle sender for throttle valve drive - G187- and angle sender 2 for throttle valve drive - G188-
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

6 - Intake manifold flap valve - N316-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

7 - Hall sender - G40-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system



8 - Injector, cylinder 4 - N33-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

9 - Injector, cylinder 3 - N32-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

10 - Stage 3 oil pressure switch - F447-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

11 - Engine speed sender - G28-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

12 - Knock sensor 1 - G61-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

Overview of fitting locations - engine (view from right side)

1 - Coolant temperature sender - G62-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

2 - Actuator 8 for camshaft adjustment - F373- (for cylinder No. 4)

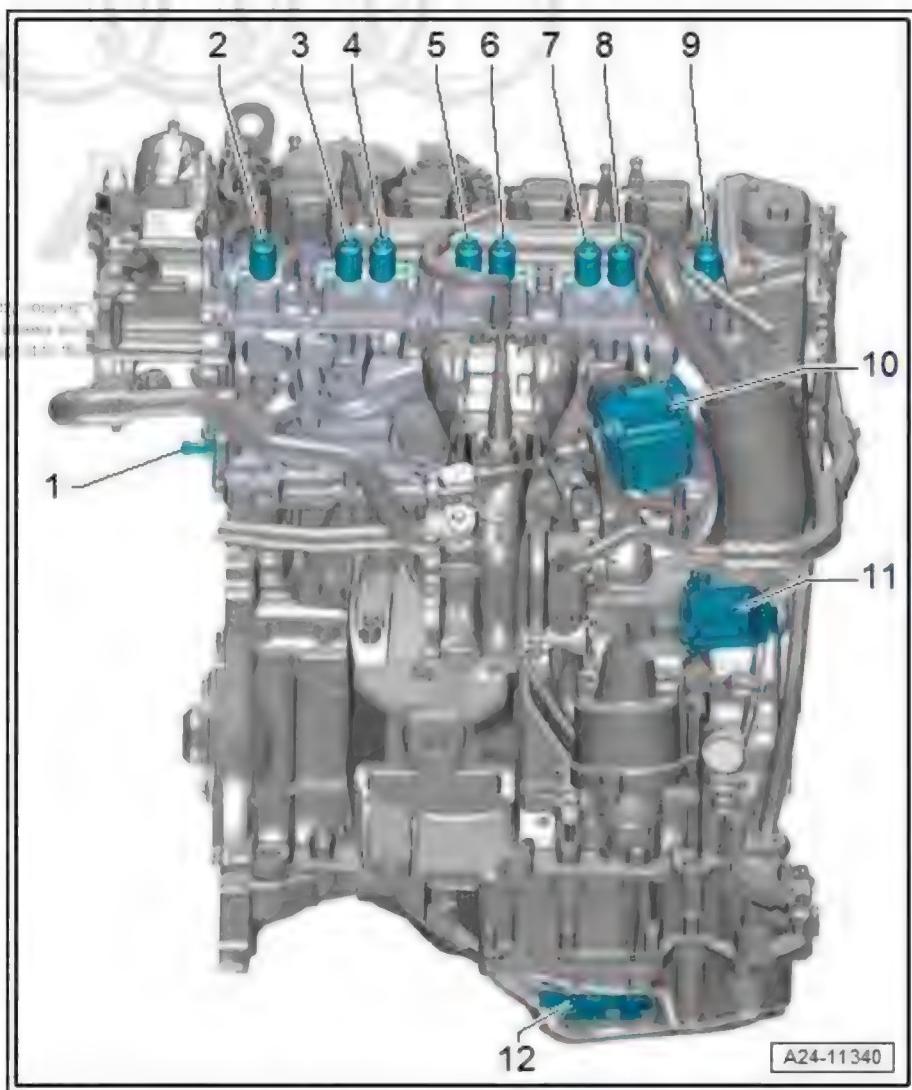
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

3 - Actuator 7 for camshaft adjustment - F372- (for cylinder No. 4)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

4 - Actuator 6 for camshaft adjustment - F371- (for cylinder No. 3)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear





5 - Actuator 5 for camshaft adjustment - F370- (for cylinder No. 3)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

6 - Actuator 4 for camshaft adjustment - F369- (for cylinder No. 2)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

7 - Actuator 3 for camshaft adjustment - F368- (for cylinder No. 2)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

8 - Actuator 2 for camshaft adjustment - F367- (for cylinder No. 1)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

9 - Actuator 1 for camshaft adjustment - F366- (for cylinder No. 1)

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

10 - Charge pressure positioner - V465- with position sender for charge pressure positioner - G581-

11 - Turbocharger air recirculation valve - N249-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Turbocharger; Exploded view - turbocharger

12 - Oil level and oil temperature sender - G266-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Exploded view - sump/oil pump

Overview of fitting locations - engine (view from front)

1 - Exhaust camshaft control valve 1 - N318-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover

2 - Camshaft control valve 1 - N205-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover

3 - Oil pressure switch - F22-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

4 - Oil pressure switch for reduced oil pressure - F378-

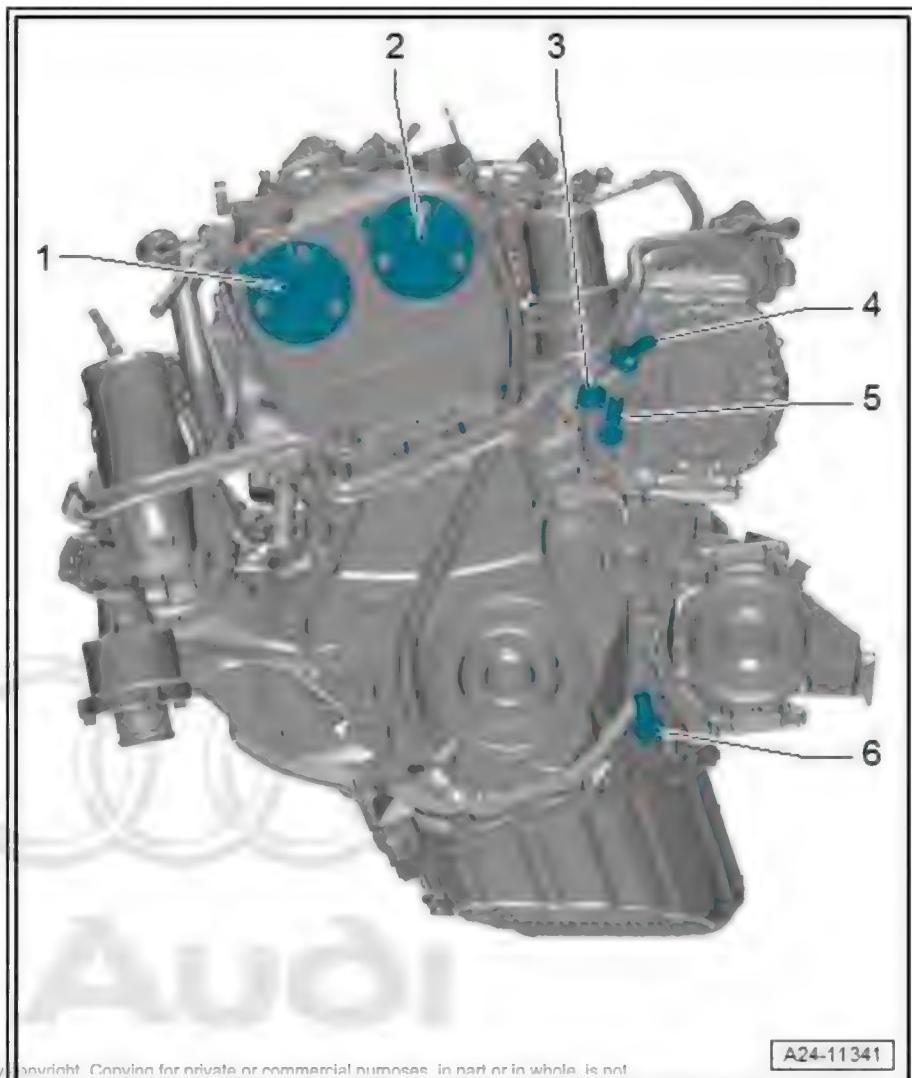
- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

5 - Piston cooling jet control valve - N522-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

6 - Valve for oil pressure control - N428-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control



Selected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the express written permission of AUDI AG. © AUDI AG. All rights reserved. Confidential. Subject to change without notice. Responsibility for technical content lies with the manufacturer.

A24-11341

2 Air cleaner

⇒ [“2.1 Exploded view - air cleaner housing”, page 114](#)

⇒ [“2.2 Removing and installing air cleaner housing”, page 114](#)

2.1 Exploded view - air cleaner housing

1 - Air duct

- Clean out salt deposits, dirt and leaves, etc.

2 - Mounting

- For air cleaner housing

3 - Air cleaner housing

- Clean out salt deposits, dirt and leaves, etc.
- Removing and installing
⇒ [page 114](#)

4 - Air filter element

- Use genuine air filter element ⇒ Electronic parts catalogue
- Change intervals ⇒ Maintenance tables
- Removing and installing ⇒ Maintenance ; Booklet 411 or ⇒ Maintenance ; Booklet 412

5 - Cover

- For air cleaner housing
- Remove any salt deposits or dirt

6 - Air pipe

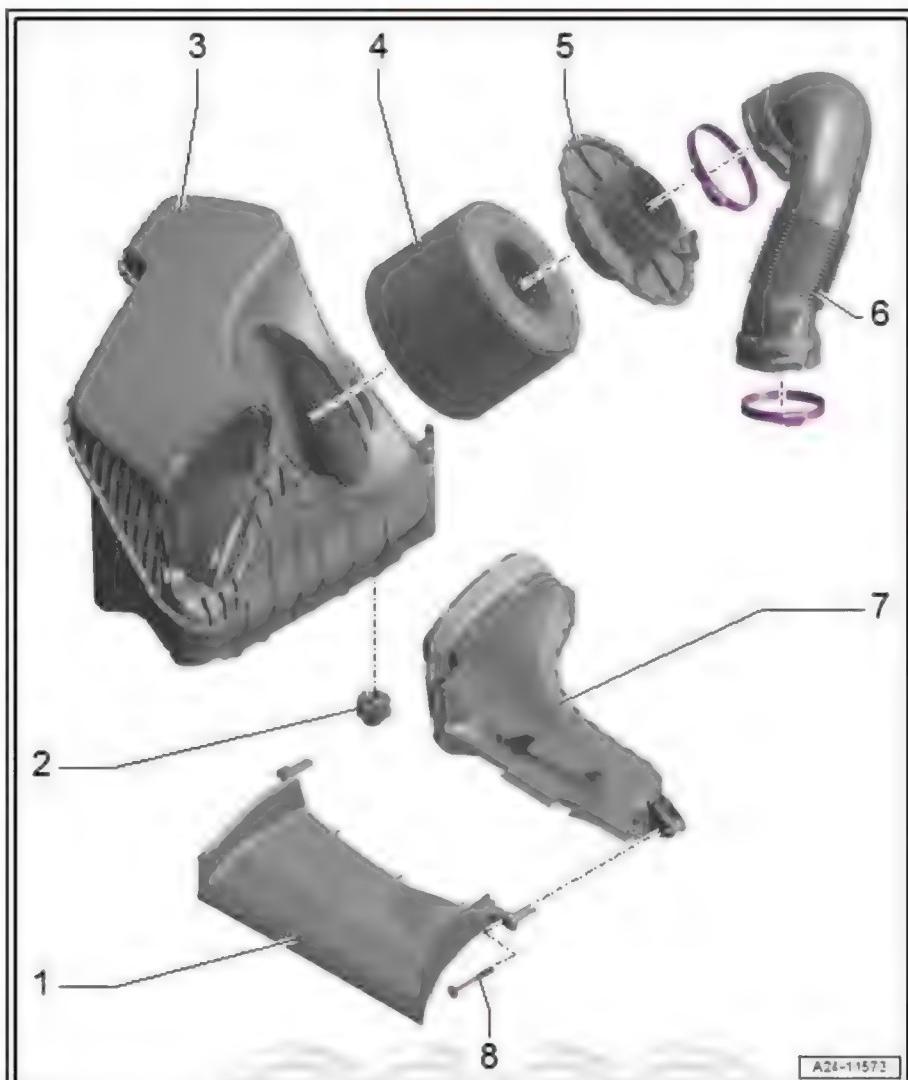
- Tightening torque for screw-type clips
⇒ [page 103](#)

7 - Air duct

- Clean out salt deposits, dirt and leaves, etc.

8 - Bolt

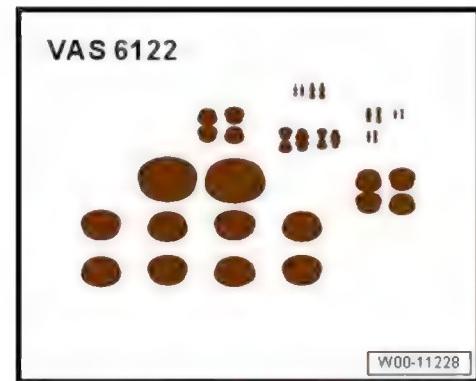
- 1.5 Nm



2.2 Removing and installing air cleaner housing

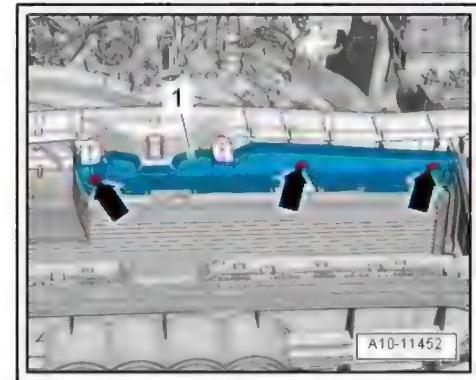
Special tools and workshop equipment required

◆ Engine bung set - VAS 6122-



Removing

- Remove lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .
- Remove bolts -arrows- and detach air duct -1-.

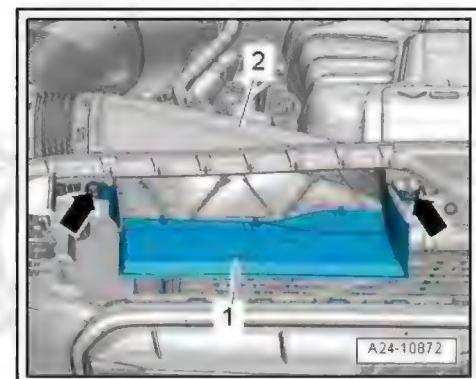


- Remove bolts -arrows- and detach air duct -2- from lock carrier.



Note

Disregard -item 1-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Release hose clip -2- and detach air hose.
- Lift out air cleaner housing -1-.
- Seal off turbocharger connection with sealing plug from engine bung set - VAS 6122- .

Installing

Installation is carried out in the reverse order; note the following:

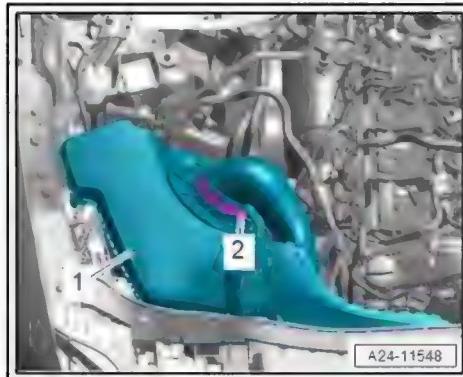


- ◆ *The air cleaner housing must always be clean.*
- ◆ *Always use genuine air filter elements (same as original equipment).*
- ◆ *Use a silicone-free lubricant when installing the air hose.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

- Check water drain hose in air cleaner (bottom section) for dirt and other obstructions (clean if necessary).
- Clean salt residue, dirt and leaves out of air cleaner housing (top and bottom sections); use a vacuum cleaner if necessary.
- Check for salt residue, dirt and leaves in air hose (engine intake side).
- Check air duct leading from lock carrier to air cleaner housing for dirt and leaves.
- Install lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing attachments .

Tightening torques

- ◆ ⇒ ["2.1 Exploded view - air cleaner housing", page 114](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system



3 Intake manifold

- ⇒ "3.1 Exploded view - intake manifold", page 117
- ⇒ "3.2 Removing and installing intake manifold", page 117
- ⇒ "3.3 Removing and installing throttle valve module J338", page 120
- ⇒ "3.4 Cleaning throttle valve module", page 120
- ⇒ "3.5 Checking intake manifold change-over function", page 120

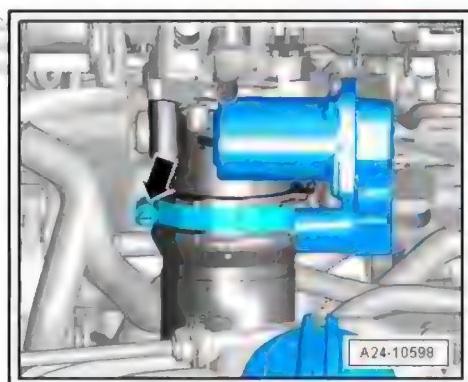
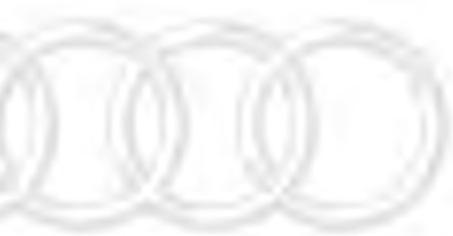
3.1 Exploded view - intake manifold

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold .

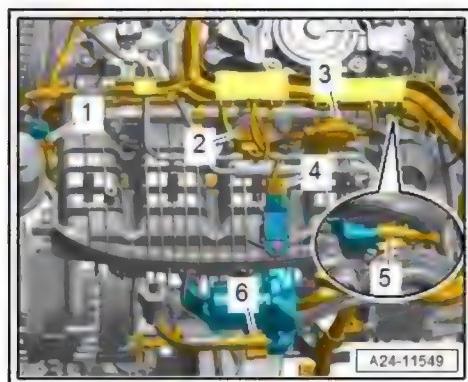
3.2 Removing and installing intake manifold

Removing

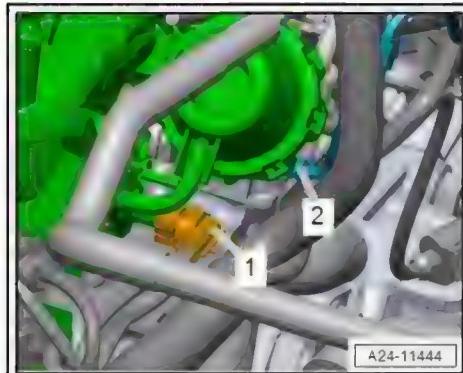
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- If there is no B+ cover on the alternator, disconnect battery to avoid short circuits ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Release hose clip -arrow- and detach air hose downwards from throttle valve module - J338- .



- Unplug electrical connectors and move wiring clear:
- 1 - For intake manifold flap potentiometer - G336-
- 2 - For fuel pressure sender for low pressure - G410-
- 3 - Main connector for MPI injectors
- 4 - For intake air temperature sender - G42-
- 5 - For Hall sender - G40-
- 6 - For throttle valve module - J338-

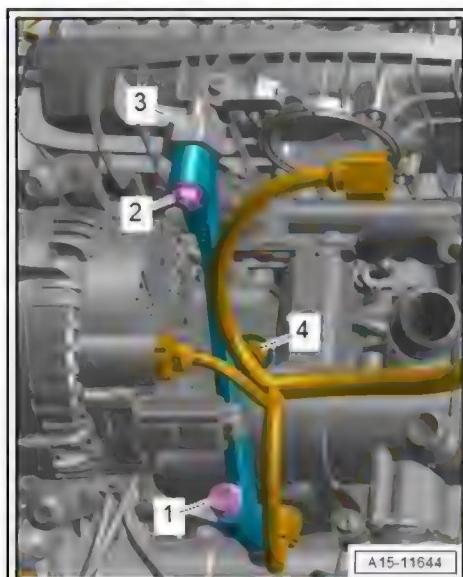


- Unplug electrical connector -1- for intake manifold flap valve - N316- .
- Disconnect vacuum hose -2-.



A24-11444

- Move electrical wiring harness -4- clear.
- Remove nut -2- and bolt -1- and detach intake manifold support.
- Remove rubber bush -3- for intake manifold support.



A15-11644

- Remove bolts -1 and 2- and press coolant pipe (left-side) to the side.



Disregard -arrows-.

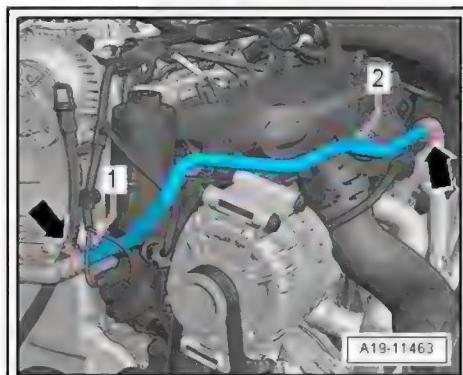


WARNING

The fuel system is pressurised.

Risk of injury as fuel may spray out.

- Put on safety goggles.
- Put on protective gloves.
- Release pressure (wrap a clean cloth around connection and open connection carefully).



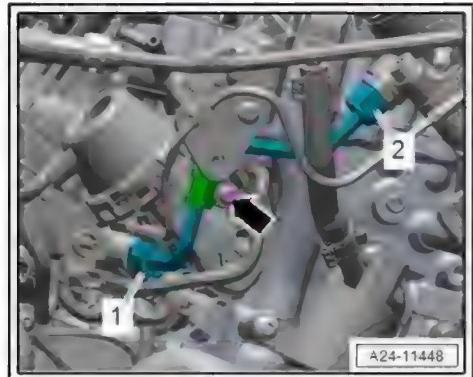
A19-11463

- Unscrew bolt -arrow- and union nuts -1, 2-.
- Detach high-pressure pipe.



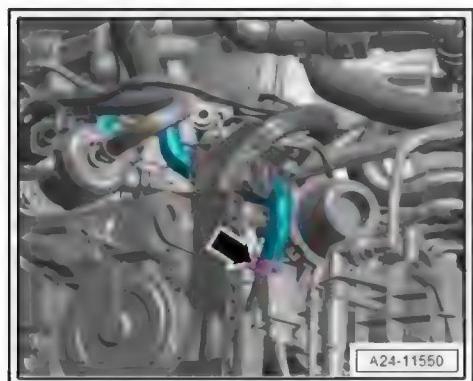
Note

- ◆ *The fuel system must not be under pressure.*
- ◆ *Use a clean cloth to catch escaping fuel.*
- ◆ *Seal off open connections with clean caps. Make sure no dirt gets into the fuel system.*



A24-11448

- Release hose clip -arrow- and detach fuel hose for MPI injection system.



A24-11550

- Move coolant line -2- clear at intake manifold and push to one side.
- Disconnect vacuum hose -4-.
- Move vacuum line -1- for intake manifold flap valve - N316- clear at intake manifold.



Note

Disregard -item 3-.

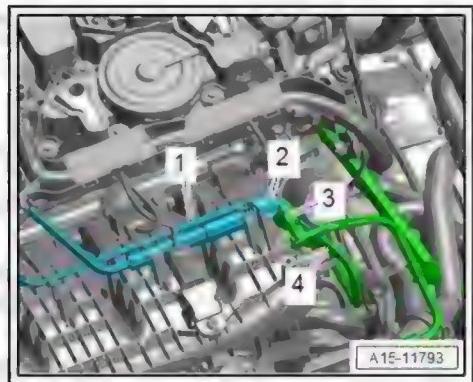
All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing intake manifold .

Copyright © Audi AG. All rights reserved. Reproduction in whole or in part is only permitted unless authorised by Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG

Installing

Additional work:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Observe steps required after re-connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



A15-11793

Tightening torques

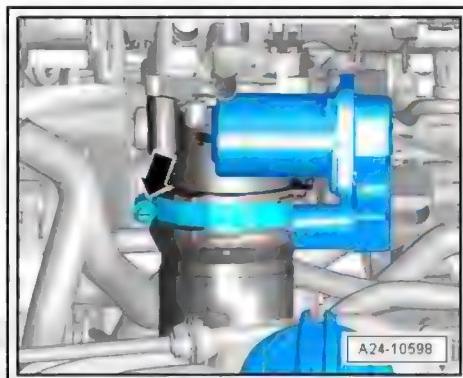
- ◆ ⇒ “3.1 Exploded view - coolant pipes”, page 78

3.3 Removing and installing throttle valve module - J338-

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Release hose clip -arrow- and detach air hose downwards from throttle valve module - J338- .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .



Installing

Additional work:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

3.4 Cleaning throttle valve module

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Cleaning throttle valve module .

3.5 Checking intake manifold change-over function

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Checking intake manifold change-over function .

Protected by copyright. Copying for private study only is permitted. In general it is not permitted unless authorised by Audi AG. Audi AG reserves the right to prosecute for infringement of the law.

4 Injectors

⇒ "4.1 Exploded view - fuel rail with injectors", page 121

⇒ "4.2 Removing and installing fuel rail", page 121

⇒ "4.3 Removing and installing injectors", page 121

⇒ "4.4 Cleaning injectors", page 121

4.1 Exploded view - fuel rail with injectors

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors .

4.2 Removing and installing fuel rail



Printed by [www.eserviceinfo.com](#). Only for private use. Commercial use is prohibited. © AUDI AG. All rights reserved. Reproduction in whole or in part, even with respect to small extracts, is prohibited without prior written permission. Disclaimer: [www.eserviceinfo.com](#)

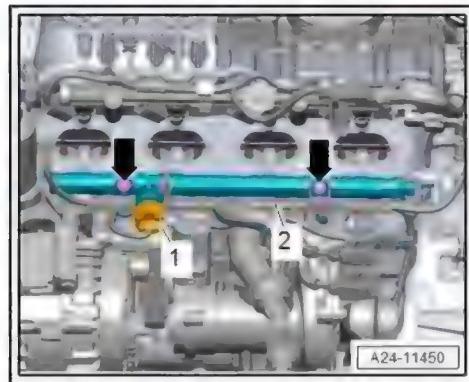
The following procedure applies to the fuel rail for FSI injectors.

Removing

- Remove intake manifold ⇒ [page 117](#) .
- Unplug electrical connector -1- at fuel pressure sender - G247- .
- Remove bolts -arrows-.
- Move wiring duct -2- clear of fuel rail and detach fuel rail from injectors.



Unplug electrical connectors of any injectors that remained lodged in fuel rail.



Installing

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing fuel rail .

4.3 Removing and installing injectors

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing injectors .

4.4 Cleaning injectors

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Cleaning injectors .



5 Senders and sensors

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ;
Senders and sensors .



Printed by expert. Only the best components are used in preparation of this document.
Printed on behalf of Audi AG. Audi AG reserves all rights. All rights reserved.
Without prior written permission, reproduction, distribution or disclosure is prohibited.

6 High-pressure pump

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; High-pressure pump .



Protected by copyright. Copying and/or private communication of this document is not permitted.
© AUDI AG. All rights reserved. This document may not be distributed outside Audi
without prior written consent of Audi AG. All rights reserved. This document is the property of Audi
AG. All rights reserved.



7 Lambda probe

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe .

© AUDI AG. All rights reserved. Reproduction in whole or in part is prohibited without prior written consent of AUDI AG. AUDI AG reserves the right to change technical details at any time without notice.

8 Engine control unit

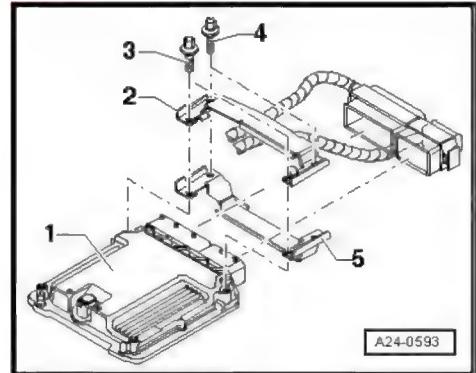
⇒ "8.1 Removing and installing engine/motor control unit J623",
 page 125

8.1 Removing and installing engine/motor control unit - J623-



Note

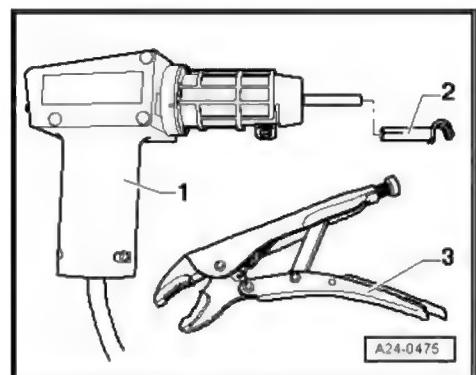
- ◆ *Not every engine control unit is bolted to a protective housing. Whether a protective housing is fitted depends on the engine/gearbox combination.*
- ◆ *The engine control unit -1- is bolted to a protective casing -2 and 5-. To make it more difficult to unscrew the shear bolts -4- for locking plate -2-, their threads have been coated with locking fluid.*
- ◆ *The protective housing has to be removed before the connectors can be unplugged from the engine control unit (e.g. to connect the test box or renew the engine control unit).*



The following special tools are required if a protective housing is fitted:

Special tools and workshop equipment required

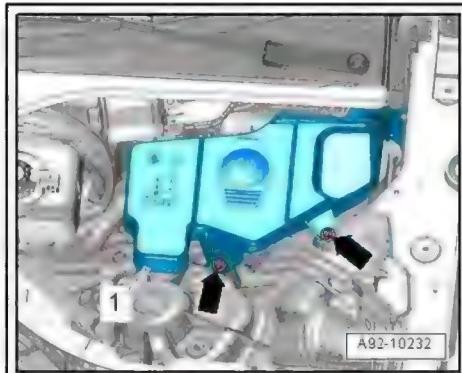
- ◆ Hot air blower - VAS 1978/14A- -item 1- with nozzle attachment -2- from wiring harness repair set - VAS 1978 B-
- ◆ Small, commercially available mole grips -3-



Removing

- When renewing engine control unit, select diagnosis object "Replace engine control unit" in "Guided Functions" mode of ⇒ Vehicle diagnostic tester.
- Switch off ignition and remove ignition key.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

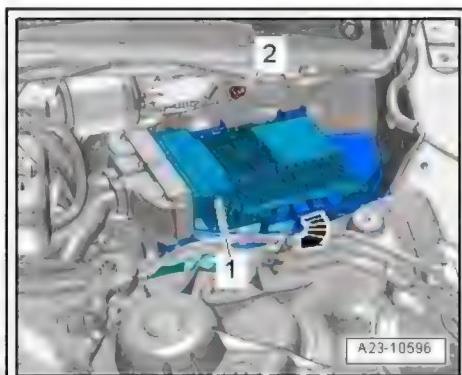
- Unscrew bolts -arrows- and pull filler neck out of washer fluid reservoir and through opening in body to right side.



- Release catch -arrow- and detach engine control unit - J623 - item 1 -.



Disregard -item 2-.



Perform the following work steps if a protective housing is fitted:

To help prevent unauthorised access to the connectors on the engine control unit, the engine control unit -1- is bolted to a protective housing -5- by means of shear bolts -3 and 4- and a locking plate -2-.

The threads of the two shear bolts -4- which are not screwed into the engine control unit are secured with locking fluid. To unscrew these two bolts, the threads must therefore be heated with the hot air blower.

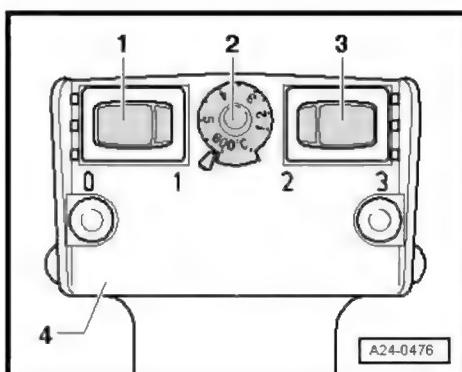
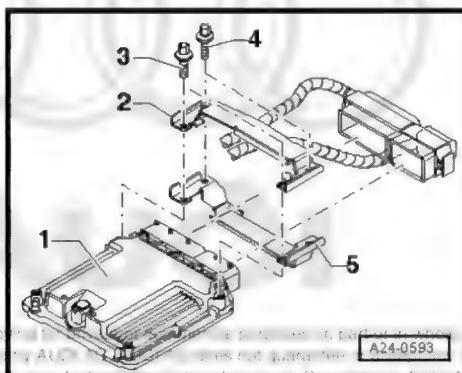
The threads of the two shear bolts -3- which are screwed into the engine control unit are not secured with locking fluid. Do not apply heat to the threads in the control unit housing; this is not necessary and would cause overheating of the control unit.

- Select settings on hot air blower as shown in illustration, i.e. set temperature potentiometer -2- to maximum heat output and two-stage air flow switch -3- to position 3.



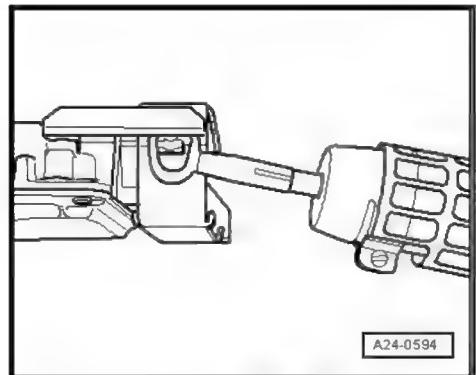
WARNING

Heating the thread of the locking plate also heats up the shear bolts and parts of the metal housing. Take care to avoid burns. It is also important to ensure that only the thread is heated and none of the surrounding components if at all possible. These should be covered if necessary.



Apply heat to the threads of the shear bolts on the connector side as shown in the illustration.

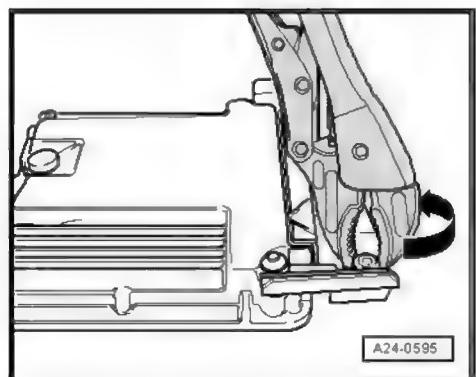
- Apply heat to the threads of the shear bolts on the connector side for approx. 25 to 30 seconds.
- Unscrew shear bolts using suitable vice-grip pliers (see arrow in illustration).



- The two shear bolts screwed into the engine control unit do not need to be heated. They should be removed without being heated.
- Detach protective housing from control unit connectors.
- Release connectors on engine control unit and unplug connectors.
- Take out old engine control unit - J623- and install new engine control unit - J623- .

Installing

Installation is performed in the reverse sequence.



- It is important that the protective housing is re-fitted on the engine/motor control unit - J623- (if fitted previously).
- Clean threaded holes for shear bolts to remove any residue from locking fluid. This can be done using a thread tap.
- Always use new shear bolts.
- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Exploded view - windscreen washer system .
- Install plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

After installing a new engine control unit, the following operation must be performed:

- Activate engine control unit in "Guided Functions", "Replace engine control unit" ⇒ Vehicle diagnostic tester.

26 – Exhaust system

1 Exhaust pipes/silencers

- ⇒ “1.1 Exploded view - silencers”, page 128
- ⇒ “1.2 Separating exhaust pipes/silencers”, page 130
- ⇒ “1.3 Removing and installing front silencer”, page 131
- ⇒ “1.4 Stress-free alignment of exhaust system”, page 133
- ⇒ “1.5 Checking exhaust system for leaks”, page 133

1.1 Exploded view - silencers

1 - Mounting

- Renew if damaged
- Check preload
⇒ [page 133](#)

2 - Bolt

- 23 Nm

3 - Centre silencer

- Combined in one unit with rear silencer as original equipment. Can be renewed individually for repair purposes
- Cutting point
⇒ [page 130](#)
- Align exhaust system so it is free of stress
⇒ [page 133](#)

4 - Mounting

- Renew if damaged
- Check preload
⇒ [page 133](#)

5 - Front silencer

- With flexible joint



Caution

*Risk of damage to flexible joint.
Do not bend flexible joint more than 10°.*

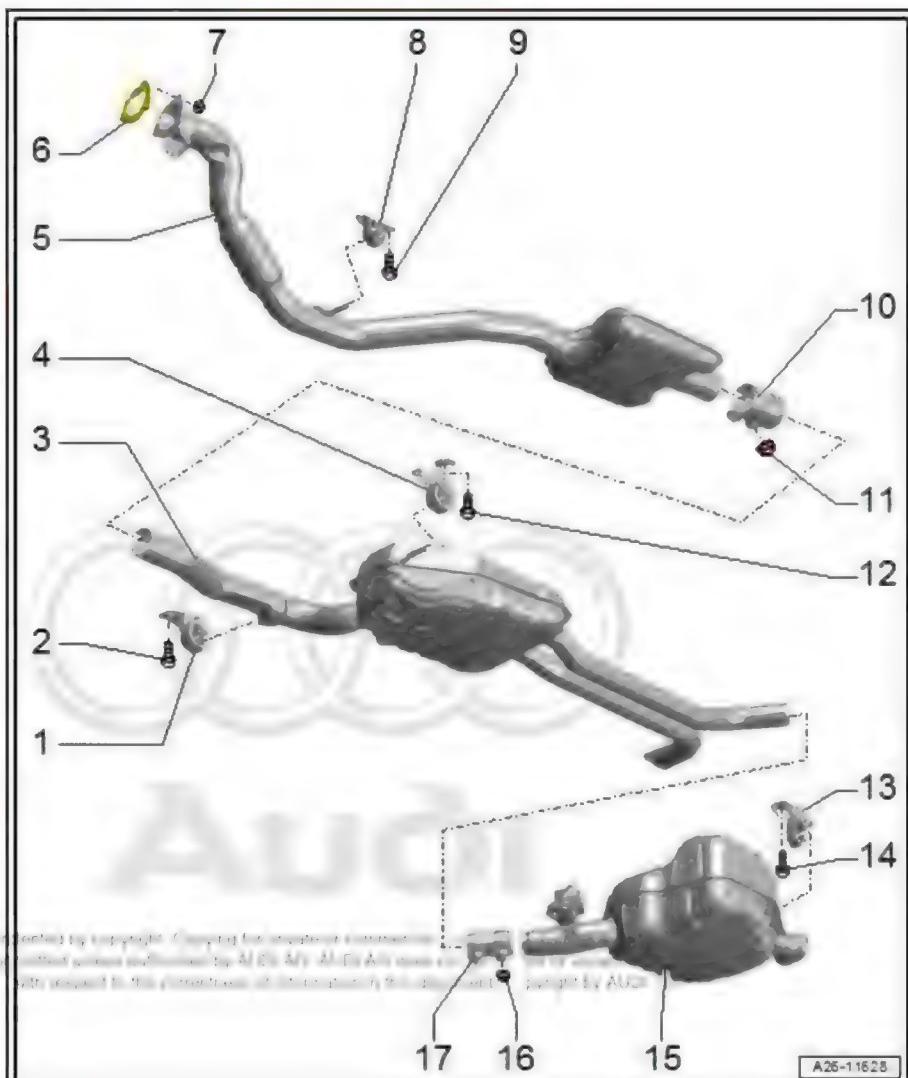
Install flexible joint so that it is not under tension.

Take care not to damage wire mesh on flexible joint.

- Removing and installing ⇒ [page 131](#)
- Align exhaust system so it is free of stress ⇒ [page 133](#)

6 - Gasket

- Renew after removing



A25-11628

7 - Nut

- 23 Nm

8 - Mounting

- Renew if damaged
- Check preload [⇒ page 133](#)

9 - Bolt

- 23 Nm

10 - Clamp (front)

- Before tightening, align exhaust system so it is free of stress [⇒ page 133](#)
- Installation position [⇒ page 130](#)
- Tighten bolt connections evenly.

11 - Nut

- 23 Nm

12 - Bolt

- 23 Nm

13 - Mounting

- Renew if damaged
- Check preload [⇒ page 133](#)

14 - Bolt

- 23 Nm

15 - Rear silencer

- Left-side: with exhaust flap control unit - J883-
- Combined in one unit with centre silencer as original equipment. Can be renewed individually for repair purposes
- Cutting point [⇒ page 130](#)
- Align exhaust system so it is free of stress [⇒ page 133](#)
- Removing and installing exhaust flap control unit - J883- [⇒ page 135](#)

16 - Nut

- 23 Nm

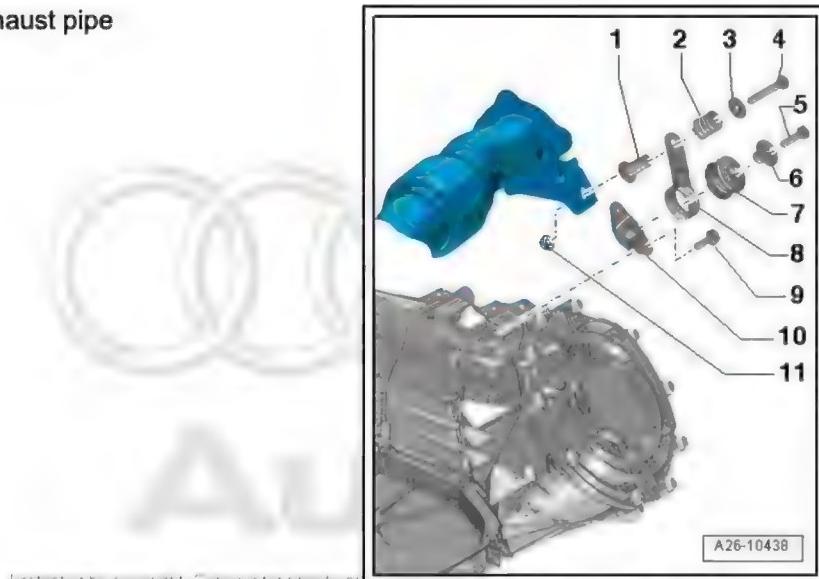
17 - Clamp (rear)

- Before tightening, align exhaust system so it is free of stress [⇒ page 133](#)
- Installation position [⇒ page 130](#)
- Tighten bolt connections evenly.

For further information about the Audi exhaust system please contact your Audi dealer or visit [www.audi.com](#). All rights reserved. Audi is a registered trademark of Volkswagen AG. © 2011 Audi AG. All rights reserved. This document is the property of Audi AG.

Components of mountings for front exhaust pipe

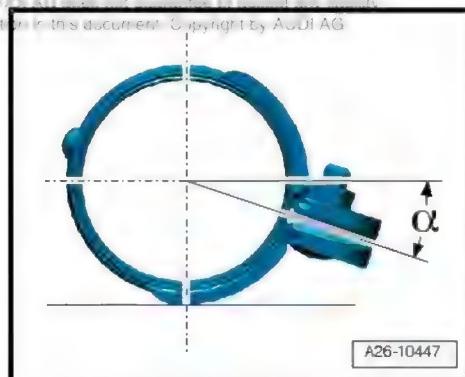
- 1 - Spacer sleeve
- 2 - Compression spring
- 3 - Washer
- 4 - Bolt, 23 Nm
- 5 - Bolt, 23 Nm
- 6 - Spacer sleeve
- 7 - Buffer
- 8 - Bracket
- 9 - Bolt, 23 Nm
- 10 - Bracket
- 11 - Nut



Installation position of front clamp

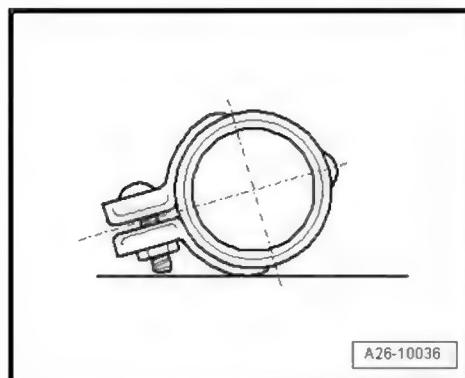
- Fit the clamp at the angle shown.
- Bolted connections face to right.
- Nuts face upwards.
- $\alpha = \text{approx. } 20^\circ$

Protected by copyright. Copying and further distribution
is prohibited without the express permission of Audi AG. Audi AG reserves the right to prosecute
violations of the lawfulness of information in this document. Copyright by Audi AG.



Installation position of rear clamp

- Install clamp so that ends of bolts do not protrude beyond bottom of clamp.
- Bolt connections face to left.



1.2 Separating exhaust pipes/silencers

- ◆ The connecting pipe can be cut through at the cutting location in order to renew the centre and rear silencers separately.
- ◆ The cutting point is marked by an indentation on the circumference of the exhaust pipe.

Special tools and workshop equipment required

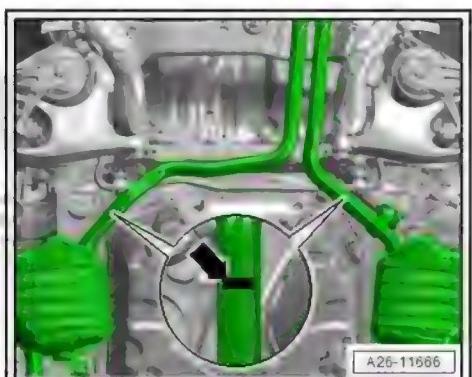
- ◆ Chain pipe cutter - VAS 6254-



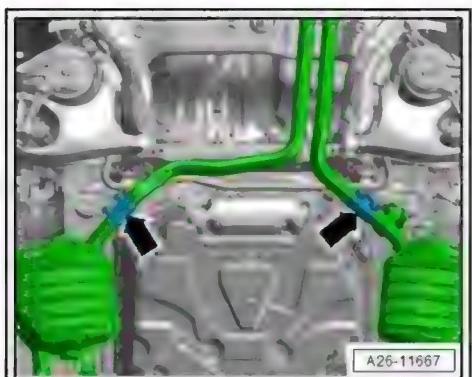
Procedure

- Cut through exhaust pipes at right angle at notches -arrow- using chain pipe cutter - VAS 6254- .

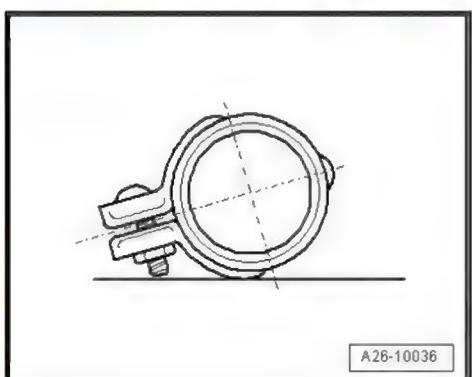
Protected by copyright. Copying for
private study or research only.
Not to be reproduced in whole or in part.



- Position centre of clamps -arrows- over cutting location.



- Install clamps so that the bolt ends do not protrude beyond bottom of clamp.
- Installation position: bolted connections face forwards.
- Align the exhaust system so it is free of stress [⇒ page 133](#) .

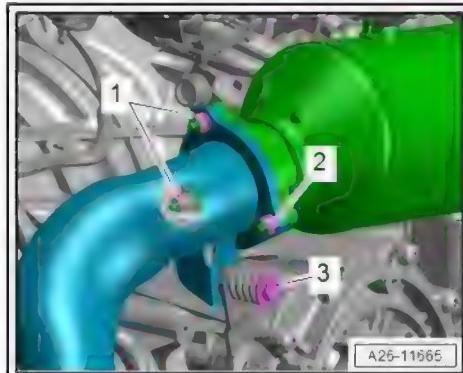


1.3 Removing and installing front silencers

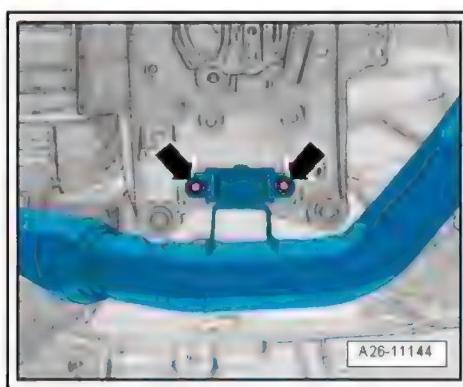
Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

- Remove noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Remove nuts -1- (accessible from above) for front silencer.
- Remove nut -1- and bolt -3- for front silencer.



- Remove bolts -arrows- for front exhaust pipe.



Caution

Risk of damage to flexible joint.

- ◆ *Do not bend flexible joint more than 10°.*
- ◆ *Install flexible joint so that it is not under tension.*
- ◆ *Take care not to damage wire mesh on flexible joint.*

- Unfasten connections -arrows-, push clamp towards rear and detach front silencer.

Installing

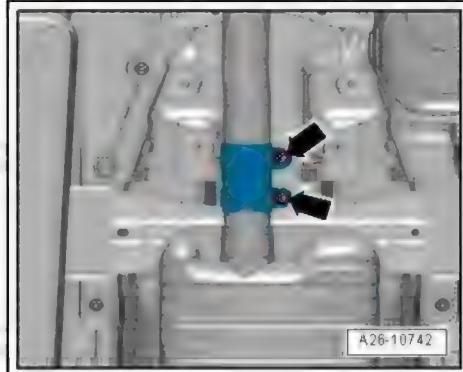
Installation is carried out in the reverse order; note the following:



Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

Renew seals, gaskets and self-locking nuts.



- Align the exhaust system so it is free of stress [⇒ page 133](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ [⇒ "1.1 Exploded view - silencers", page 128](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)

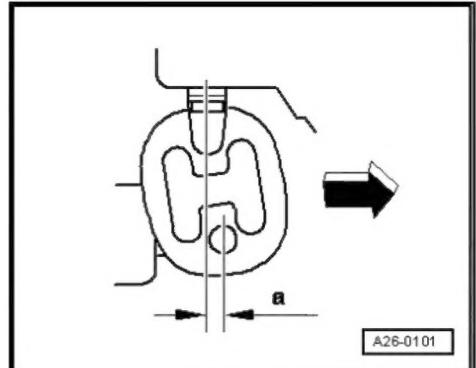
1.4 Stress-free alignment of exhaust system

Procedure

- The exhaust system must be aligned when it is cool.

Vehicles without clamps between centre silencer and rear silencers

- Loosen bolted connections on front clamps.
- Push exhaust system towards front of vehicle -arrow- until mountings in front of centre silencer are preloaded by $a = 6 \dots 10$ mm.
- Tighten bolted connections on clamps evenly.



A26-0101

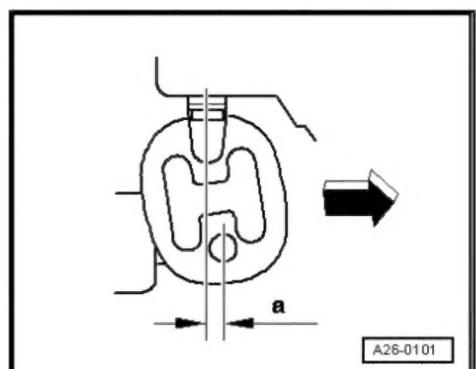
Vehicles with clamps between centre silencer and rear silencers



Note

On a vehicle with clamps fitted between the centre silencer and rear silencers, it is also necessary to align the centre silencer.

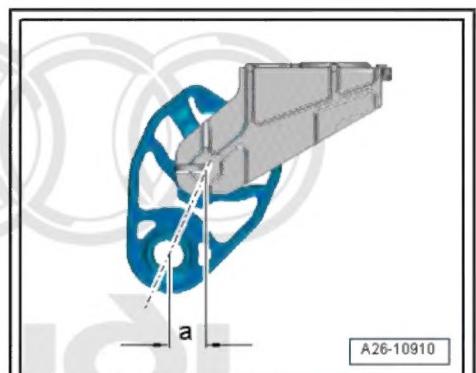
- Loosen bolted connections on front and rear clamps.
- Push exhaust system towards front of vehicle -arrow- until mountings in front of centre silencer are preloaded by $a = 6 \dots 10$ mm.
- Tighten bolt connections on front clamp evenly.
- Push rear section of exhaust system towards front of vehicle -arrow-, so that mountings (rear) for rear silencers are preloaded by $a = 11 \dots 15$ mm.
- Align rear silencers so they are horizontal.
- Tighten bolted connections on rear clamps evenly.



A26-0101

Tightening torques

- ◆ [⇒ "1.1 Exploded view - silencers", page 128](#)



A26-10910

1.5 Checking exhaust system for leaks

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of information in this document. Copyright by AUDI AG.
 All procedures are described in ⇒ **Servicing 4-cylinder engine**,
 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Exhaust pipes/silencers;
 Checking exhaust system for leaks .

2 Emission control system

- ⇒ "2.1 Exploded view - emission control system", page 134
- ⇒ "2.2 Removing and installing catalytic converter", page 134
- ⇒ "2.3 Removing and installing exhaust flap control unit J883", page 135

2.1 Exploded view - emission control system

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Emission control system; Exploded view - emission control system .

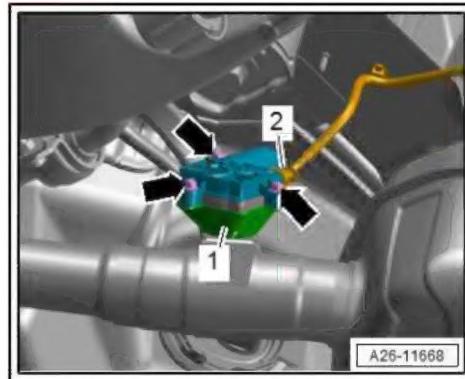
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written permission of AUDI AG. All rights reserved. AUDI AG reserves the right to sue for damages in case of unauthorized use. Any unauthorized use of this document may be subject to criminal prosecution under the Federal Copyright Act (U.S.A.) and other national and international laws.



Note

Renew nuts after removing.

- Tighten nuts -arrows- to 3 Nm.



2.2 Removing and installing catalytic converter

Removing



Note

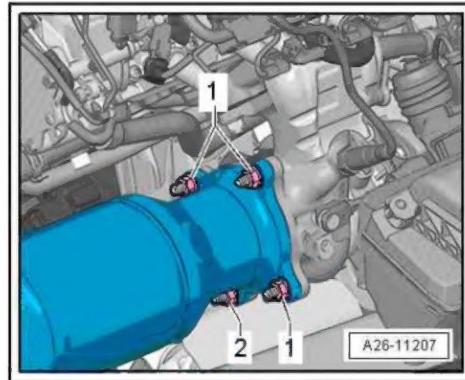
Fit all cable ties in the original positions when installing.

- Remove front silencer ⇒ page 131 .
- Remove nut -2- from underneath.

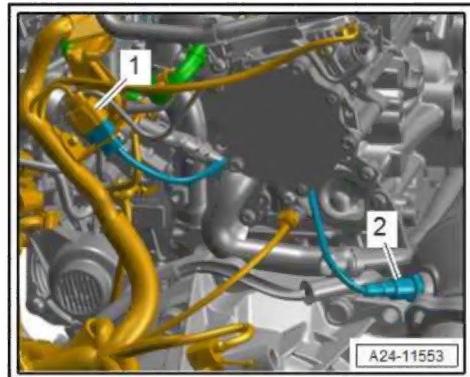


Note

The nuts -1- are removed at a later stage.



- Unplug electrical connector -1- for Lambda probe after catalytic converter - G130- -item 2- and move wiring clear.



- Remove nuts -1- from above and lift out catalytic converter.

Installing

Installation is carried out in the reverse order; note the following:

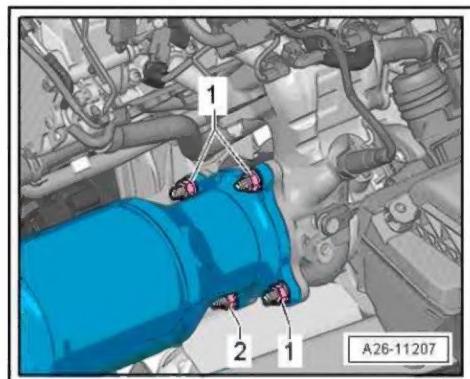


Note

Renew seals, gaskets and self-locking nuts.

Tightening torques

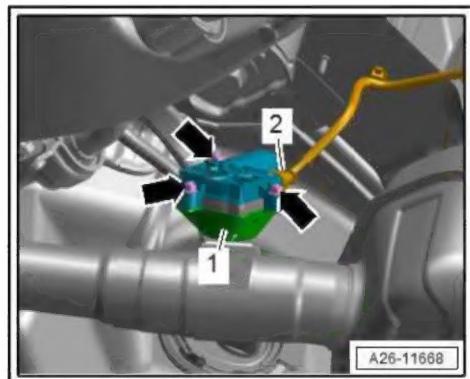
- ◆ [⇒ "1.1 Exploded view - silencers", page 128](#)



2.3 Removing and installing exhaust flap control unit - J883-

Removing

- Unplug electrical connector -2-.
- Remove nuts -arrows- and detach exhaust flap control unit - J883- -item 1-.



Installing

Installation is carried out in the reverse order; note the following:



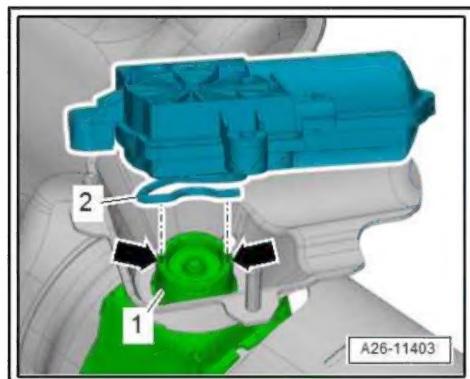
Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Move exhaust flap control unit - J883- into installation position.
- Spring -2- must engage in grooves -arrows- on exhaust flap -1-.

Tightening torques

- ◆ [⇒ Fig. "Exhaust flap control unit -J883- - tightening torque"-, page 134](#)





28 – Ignition system

1 Ignition system

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.